

Borough of Brighton.

---

ANNUAL REPORT

ON THE

HEALTH,

SANITARY CONDITION, &c.,

OF THE

BOROUGH OF BRIGHTON,

FOR THE YEAR 1900.

BY

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*President, 1899-1900, of the Incorporated Society of Medical Officers of Health.*

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1901.

# BOROUGH OF BRIGHTON.

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"	"	BUTT-THOMPSON,
"	"	GALLIERS,
"	"	HOLLIS,
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"	"	MCCLEAN,
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Town Clerk: MR. FRANCIS J. TILLSTONE.

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### Chief Inspector of Nuisances.

JAMES F. SKINNER (Certif. San. Institute).

Medical Officer of Health: ARTHUR NEWSHOLME, M.D.

## PREFACE.

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TOWN HALL,

March 23rd, 1901.

*To the Sanitary Committee of the Brighton Town Council.*

GENTLEMEN,—

I have the honour to present to you my Annual Report, dealing with the work of my department during 1900. That work, as you are aware, has been exceptionally anxious and arduous during the entire year under report. I have thought it proper to set forth the facts relating to the causes of anxiety in fuller detail than has previously been done, because it appears to me that due co-operation in the prevention of the spread of infection on the part of all responsible persons may, in the future, be more easily and more certainly secured by such a statement. At the time of writing, diphtheria is practically absent from Brighton, so that my remarks on this disease are chiefly of importance as bearing on possible similar contingencies in the future. Even during last year Brighton has escaped—in part at least, I claim, in consequence of our vigorous action—much more lightly than other towns (see page 28); and it will occupy a still better position if the lines of action indicated on page **22** be followed.

I beg to thank you for the cordial support which you have always accorded me in carrying out my work, which has greatly diminished the anxiety necessarily associated with it.

I am, Gentlemen,

Your obedient Servant,

*Arthur Newsholme, M.D.*

*Medical Officer of Health.*

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## A.—VITAL STATISTICS.

### POPULATION.

The population of the County Borough of Brighton at the middle of 1900 is estimated by the Registrar-General to be 124,148. This estimate is based on the assumption that the rate of increase during the decennium 1881-90, is being continued in the present decennium. This estimate is evidently open to serious doubt ; but, as during the present month a census will be taken, more accurate information will be shortly available, and the rates based on the above estimated population will be capable of being corrected. Occasionally it is practicable to obtain a check on the estimated population by means of the births, but with a declining birth-rate throughout the country, as well as in other civilized countries, this is less practicable. Probably, however, our population is underestimated by the official figures.

During 1900, 367 new dwelling-houses were passed by the Borough Surveyor's Department, as compared with 373 in 1899, and 324 in 1898. These were situate in the following Wards :—Kemp Town 30, Lewes Road 72, Queen's Park 34, Preston 87, Preston Park 132, Montpelier 12,

These figures are helpful in ascertaining the population of each municipal ward ; but, in view of the nearness of the census, I have considered it more cautious to abstain from framing death-rates for each ward on the deaths given for each ward in Table II.

### BIRTHS.

The total number of births registered in the Borough in the 52 weeks ending December 29th, 1900, was 2,920,—1,464 of boys and 1,456 of girls. This is equivalent to a birth-rate of 23·6 per 1,000 inhabitants. The birth-rate of the thirty-three great towns was 29·4 per 1,000, that of London being 28·6. Brighton had the lowest birth-rate among the great towns, with the exception of Huddersfield, Halifax and Bradford. For a comparison of the birth-rate with that of previous years see Table I.

Of the births, 155 were of illegitimate children, forming 5·3 per cent. of the total births, as compared with 5·9 per cent. in the previous year. 47 births occurred in the Workhouse, of which 41 were of illegitimate children.



TABLE I.—*Comparison of Births and Deaths in Successive Years.*

Years.	Births.	Birth-Rate per 1,000 inhabit- ants.	Deaths from all Causes.	Death- Rate per 1,000 inhabit- ants.	Death-Rate from the seven chief Infectious Diseases per 1,000 inhabitants.	Death-Rate under one year of age per 1,000 births.
1882	3284	30·2	2372	21·8	4·40	187
1883	3236	29·6	2131	19·5	2·50	160
1884	3248	29·1	2064	18·8	1·77	162
1885	2981	26·9	1952	17·6	1·43	132
1886	2957	26·5	1986	17·8	1·97	160
1887	3038	27·0	1988	17·7	2·33	148
1888	2791	24·6	1928	17·0	1·42	149
1889	2964	26·0	1833	16·1	1·60	131
1890	2915	25·4	2232	19·1	2·57	164
1891	3031	26·2	2097	18·2	1·06	137
1892	2958	25·1	2232	18·9	2·09	151
1893	2981	25·3	2165	18·4	1·84	169
1894	3055	25·8	1943	16·4	1·20	137
1895	3057	25·6	2250	18·8	1·72	164
*1896	3025	25·1	1975	16·1	1·66	124
1897	2986	24·6	1823	15·0	1·54	144
1898	3035	24·8	2057	16·7	1·69	179
1899	3058	24·8	2322	18·9	2·49	173
1900	2920	23·6	2209	17·8	2·25	166

\*53 weeks.

## DEATHS.

During the year 1900, 2,209 deaths were registered as belonging to Brighton, 1069 of males and 1140 of females. This shows an annual death-rate of 17·8 per 1,000 of estimated population, as compared with 18·9 in 1899, and 16·7 in 1898 (see Table I.).

The general course of the death-rate since 1874, when Preston was incorporated with the Municipal Borough, has been as follows:—

*Death-rate from all causes.*

Three years	1875-77	...	...	...	20·5.
"	"	1878-80	...	...	20·3.
"	"	1881-83	...	...	20·2.
"	"	1884-86	...	...	18·0.
"	"	1887-89	...	...	16·9.
"	"	1890-92	...	...	18·7.
"	"	1893-95	...	...	17·9.
Five	"	1896-1900	...	...	16·9.

In the three decennia preceding 1880, the death-rate was as follows:— In 1851-60, 25·0; in 1861-70, 25·6; in 1871-80, 20·5 per 1,000.

Thus the average death-rate for the past five years was lower than in any preceding period, except 1887-89, notwithstanding the excessive prevalence of

Influenza in recent years (for the amount of which see Table XIV., page 67), which affects a population largely composed of the aged and of invalids to a more serious extent than populations more normally constituted\*

In the following table the number of deaths and the chief causes of death in each municipal ward are given. Death-rates are not given, owing to the impossibility of accurately estimating the population of the wards.

TABLE II.

WARD.	Number of Deaths during 1900.									
	All Causes.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	Phthisis.	Other Tubercular Diseases.	Bronchitis and Pneumonia.
Kemp Town	124 <sup>(1)</sup>	—	5	1	2	2	3	11	2	15 <sup>(1)</sup>
Queen's Park	130 <sup>(31)</sup>	2	1	—	9	3 <sup>(2)</sup>	4	11 <sup>(1)</sup>	6	21 <sup>(2)</sup>
Pier ...	236 <sup>(1)</sup>	—	—	1	9	3	14	27	5	41
Pavilion ...	50 <sup>(1)</sup>	1	—	—	—	—	—	5	1	6
Regency ...	122 <sup>(2)</sup>	—	2	2	6	—	—	11	2	19
West ...	78 <sup>(1)</sup>	1	—	—	—	—	—	6	1	15
Montpelier	84 <sup>(6)</sup>	1	1	2	—	—	1	6	2	7
St. Nicholas	162 <sup>(4)</sup>	1	7	1	2	4	8	15	4	25
St. John's...	243	1	6	—	6	3	11	19	5	51
Hanover ...	208	—	3	1	10	4	17	9	3	28
Lewes Road	273	1	13	1	4	10	12	21	14	42
St. Peter's...	168	1	15	1	3	1	7	15	7	30
Preston Park	89	1	2	1	1	—	5	5	4	5
Preston ...	189 <sup>(6)</sup>	2	17	(1)	1	3	12	11	3	29
	2156 <sup>(63)</sup>	12	72	11 <sup>(1)</sup>	53	33 <sup>(2)</sup>	94	172 <sup>(1)</sup>	59	334 <sup>(3)</sup>

(Deaths in Public Institutions, &c., the home address of which was not stated, are given in brackets).

The same difficulty does not apply with regard to a statement of the deaths under one year of age per 1,000 births, and in the following table these are given—

\* In the week ending Jan. 6th, 1900, the death-rate was at the annual rate of 44.9 per 1,000. Of the total 107 deaths occurring during that week, 38 were at ages over 70, their average age being 76. This excessive death-rate was caused by Influenza, and in reporting on it I remarked on the erroneous impressions which are apt to be created by a temporarily high local death-rate, adding, "in one sense of the word, there is no such a thing as 'lowering the death-rate,' of which so much is spoken. All that can be done is to *postpone deaths*, so that deaths which formerly occurred at a premature age will now occur in a ripe old age. This is what is meant when one speaks of 'lowering the death-rate,' and it is the main object of the science of Public Health." I then enumerated the reasons, well known to you, why Brighton suffers severely when Influenza is prevalent.

TABLE III.

	Deaths from All Causes under one year of age per 1000 Births.	Deaths from Diarrhœa per 1000 Births.
Kemp Town ... ..	219	26
Queen's Park ... ..	194	20
Pier ... ..	269	58
Pavilion ... ..	25	—
{ Regency ... ..	152	—
{ West ... ..	153	—
{ Montpelier ... ..	211	13
St. Nicholas ... ..	178	34
St. John's ... ..	171	29
Hanover ... ..	179	45
Lewes Road .. ..	164	31
St. Peter's ... ..	143	50
Preston Park ... ..	148	32
Preston ... ..	114	40

The ward which stands out most favourably for total infantile mortality is Preston; the worst, Kemp Town and Pier Wards. In regard to epidemic diarrhœa, Pier Ward is again worst, but St. Peter's and Hanover Wards are also high, and Preston Ward does not occupy a favourable position.

#### DEATH OF VISITORS.

Of the total 2,235 deaths registered in Brighton during last year, 81 occurring in private houses, 25 in the County Hospital, and 8 in the Children's Hospital, 2 in the Throat and Ear Hospital and 1 in the Convalescent Home, Marine Parade, were stated to be of visitors. The return of deaths among visitors is incomplete, many of the deaths occurring amongst visitors not being marked as such. The County Hospital in particular draws a considerable number of patients from surrounding districts, as will be seen from the following table of deaths in that institution :—

	1894.	1895.	1896.	1897.	1898.	1899.	1900.
Deaths of Inhabitants of Brighton ... ..	94	92	96	85	73	90	89
Deaths of persons from the rural districts of Sussex, &c. ... ..	21	24	25	31	27	21	17
Deaths of persons from Hove ... ..	12	11	11	10	7	7	6
Deaths of persons from London, &c. ... ..	2	3	4	7	8	2	2
Addresses not known ... ..	4	1	—	2	1	—	—
Total Deaths in the Sussex County Hospital	133	131	136	133	116	120	114



Thus, taking the average of seven years, 29.9 per cent. of the total deaths in the County Hospital were of non-residents.

Of the 39 patients dying in the Children's Hospital during 1900, one came from Bognor, one from Horsham, one from Fishersgate, one from Southwick, one from Woodmancote and three from Hove.

Of the two patients dying in the Throat and Ear Hospital, one came from Burgess Hill and one from Steyning.

The Registrar-General excludes from the Brighton returns the deaths occurring in the Female Convalescent Home, Marine Parade, in the Sussex County Hospital, and in the Borough Sanatorium respectively, of persons who had not resided in the Borough prior to their admission into these respective institutions; and includes on the other hand the deaths of any Preston paupers which occur in the Steyning Union Workhouse. 25 deaths of outsiders occurred, as shewn above, at the County Hospital, and one in the Convalescent Home. The result of the correction carried to this extent is to reduce the total 2,235 deaths by 26. No correction is made for the Children's Hospital and other institutions in the town; and no account is taken of the much larger number of visitors who die in Brighton, but not in any public institution in it.

## DEATHS IN PUBLIC INSTITUTIONS.

Of the total deaths, 280 occurred in the Workhouse, 89 in the Sussex County Hospital, 39 in the Children's Hospital, 78 in the Sanatorium, 1 in the Lying-In Hospital, 2 in the Barracks, 7 in the Shoreham Workhouse, 1 in the Deaf and Dumb Institution, and 2 in the Throat and Ear Hospital.

## INFANTILE MORTALITY.

The infantile death-rate for each ward is given, page 8.

*Mortality among Illegitimate Infants.*—The total number of deaths under one year of age in 1900 was 484. Of this number 52 were illegitimate children. Stated in proportion to numbers living, the relative mortality among legitimate and illegitimate infants was as follows:—

	1894.	1895.	1896.	1897.	1898.	1899.	1900.
Deaths of legitimate infants							
per 1,000 legitimate births	135	151	129	135	169	199	156
Deaths of illegitimate infants							
per 1,000 illegitimate births	173	358	233	265	316	354	345

## DEATHS AND SICKNESS ACCORDING TO SEASONS.

Table XIII. gives the weekly deaths from the chief causes of death. In the following table the incidence of notifiable infectious diseases, according to the months of the year, is shewn.

TABLE IV.—*Number of Cases notified in each month of 1900.*

	Diphtheria and Membranous Croup.	Scarlet Fever.	Typhoid Fever.	Erysipelas.	Puerperal Fever.
January ...	99	113	5	7	—
February ...	48	74	5	7	—
March ...	39	54	1	4	—
April ...	21	68	4	9	—
May ...	55	74	8	8	—
June ...	65	40	3	7	1
July ...	54	36	3	9	—
August ...	21	18	8	7	—
September ...	88	19	10	8	1
October ...	89	27	7	13	—
November ...	50	31	13	12	—
December ...	52	28	16	5	—
	681	582	83	96	2

## CHIEF CAUSES OF DEATH.

The chief causes of death, and the number of deaths from each disease or group of diseases, are tabulated in Table V. This table gives the relative incidence of different diseases, and the incidence of each disease in the two sexes and at different ages.



TABLE V.

CAUSES OF DEATH IN BRIGHTON DURING THE YEAR 1900.	Total Deaths.	SEX.			
		Male.	Female.	0—1	1—5
Small Pox ... ..	—	—	—	—	—
Measles ... ..	53	23	30	13	40
Whooping Cough ... ..	35	11	24	21	13
Enteric Fever ... ..	12	9	3	—	—
Diarrhœa ... ..	94	42	52	70	14
Diphtheria ... ..	72	42	30	4	40
Scarlet Fever ... ..	12	7	5	—	7
Puerperal Fever ... ..	1	—	1	—	—
Erysipelas ... ..	4	1	3	—	—
Other Zymotic Diseases ... ..	4	2	2	1	—
Influenza ... ..	70	27	43	—	—
Syphilis ... ..	22	14	8	17	1
Tetanus ... ..	1	1	—	1	—
Ulcerative Endocarditis ... ..	1	1	—	—	—
Varicella ... ..	1	—	1	1	—
Plithisis ... ..	173	111	62	1	2
Tabes Mesenterica ... ..	5	4	1	2	1
Brain Tubercle... ..	22	9	13	8	7
Other Tubercular Diseases ... ..	32	13	19	5	7
Cancer Malignant Disease... ..	96	36	60	—	—
Gout and Rheumatism ... ..	18	6	12	—	—
Other Constitutional Diseases ... ..	32	13	19	7	3
Parasitic Diseases ... ..	—	—	—	—	—
Dietic ... ..	15	7	8	1	—
Nervous Diseases, excluding Convulsions ... ..	157	71	86	11	11
Convulsions ... ..	40	25	15	31	8
Diseases of Organs of Special Sense ... ..	3	3	—	1	—
Circulatory ... ..	176	86	90	1	—
Respiratory ... ..	382	183	199	70	64
Digestive ... ..	153	80	73	40	11
Generative ... ..	15	—	15	—	—
Urinary ... ..	58	37	21	—	—
Locomotory ... ..	3	—	3	1	—
Integumentary ... ..	12	6	6	2	3
Diseases of Glandlike Organs of Uncertain Use ... ..	2	1	1	—	—
Premature birth and low vitality ... ..	89	46	43	89	—
Congenital defects and mal- formations ... ..	6	4	2	6	—
Old age ... ..	192	72	120	—	—
Violence... ..	69	41	28	15	5
Ill-defined ... ..	77	35	42	65	4
TOTALS ... ..	2209	1069	1140	484	241



TABLE V. (*contd.*)

AGES AT DEATH.									
5—10	10—15	15—20	20—25	25—35	35—45	45—55	55—65	65—75	75 and upwards
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
1	—	—	—	—	—	—	—	—	—
1	—	—	1	2	5	2	1	—	—
1	—	—	—	—	1	—	3	1	4
18	5	2	1	1	1	—	—	—	—
2	—	—	1	2	—	—	—	—	—
—	—	—	—	1	—	—	—	—	—
—	—	—	—	—	—	—	—	—	4
1	—	—	—	—	—	2	—	—	—
—	1	—	1	1	6	11	12	18	20
—	—	—	—	—	—	2	1	—	1
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	—	—	—
2	5	9	9	35	41	41	22	5	1
1	—	—	—	1	—	—	—	—	—
4	2	1	—	—	—	—	—	—	—
2	4	3	1	3	1	4	2	—	—
—	—	1	1	3	13	29	22	20	7
1	2	3	—	1	—	2	2	4	3
1	3	2	1	1	1	6	3	3	1
—	—	—	—	—	—	—	—	—	—
—	—	—	—	2	3	5	3	1	—
1	3	3	4	4	10	19	31	31	29
—	1	—	—	—	—	—	—	—	—
—	1	—	—	—	—	1	—	—	—
5	1	4	3	15	12	25	43	35	32
3	7	2	1	5	17	17	54	61	81
7	4	—	2	11	14	18	16	18	10
—	—	—	2	5	5	2	1	—	—
—	1	2	—	4	3	9	17	16	6
—	—	—	1	—	—	—	1	—	—
—	—	—	—	1	—	—	2	3	1
—	—	1	1	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	3	36	153
3	3	2	7	6	5	9	4	5	5
—	—	—	1	1	1	2	1	2	—
54	43	37	38	105	139	207	244	260	358

## ZYMOTIC DISEASES.

The seven chief infectious diseases caused 258 deaths, as compared with 308 in the previous year, which is equivalent to an annual death-rate of 2·25 per 1,000 of population.

The relative proportion borne by each zymotic disease is shewn in Table VI.

TABLE VI.

Year.	Population.	Annual Death-Rate per 100,000 of population from									
		All Causes.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever (chiefly Enteric).	Diarrhœa.	Phthisis.	Other Tubercular Diseases.
1869	87,659	2060	—	2	79	12	45	39	147	—	—
1870	88,878	2390	45	44	150	32	83	40	111	—	—
1871	90,345	2260	71	23	91	9	9	38	155	—	—
1872	91,684	2090	4	45	83	10	26	27	143	—	—
1873	93,041	1870	—	7	6	4	45	33	91	—	—
1874	95,297	2130	1	65	4	20	55	34	78	—	—
* 1875	97,005	2250	—	2	21	8	89	26	104	—	—
1876	98,746	2000	1	57	68	9	13	14	76	—	—
1877	100,510	1910	10	2	27	5	52	18	80	233	—
1878	102,320	2160	—	22	8	4	80	16	107	225	—
1879	104,150	1930	—	25	13	3	52	10	42	214	—
1880	106,200	2000	—	22	77	3	41	21	127	192	—
1881	107,934	1910	8	21	68	6	30	42	48	183	—
1882	108,680	2180	4	143	83	7	115	25	61	209	—
1883	109,423	1960	—	51	11	6	57	25	96	192	—
1884	110,180	1870	1	7	27	14	33	14	80	195	—
1885	110,938	1760	1	31	6	16	41	16	32	191	—
1886	111,704	1780	—	10	12	19	60	12	84	195	—
1887	112,473	1770	—	64	9	27	28	12	95	178	—
1888	113,248	1700	—	3	8	21	43	13	54	153	65
1889	114,029	1610	—	40	10	9	24	16	56	178	67
1890	114,814	1910	—	53	10	12	89	11	82	192	86
1891	115,606	1820	—	24	1	10	18	11	41	143	81
1892	116,424	1890	—	99	7	19	19	7	58	141	79
1893	117,833	1840	—	11	9	30	47	13	74	168	88
1894	118,715	1640	—	30	3	22	12	9	44	152	87
1895	119,606	1880	—	21	4	15	34	12	86	167	74
1896	120,499	1610	—	45	5	16	26	11	61	150	66
1897	121,401	1501	—	14	10	10	21	17	91	142	47
1898	122,310	1674	—	7	6	18	18	15	105	136	65
1899	123,227	1889	—	1	8	50	15	20	155	146	28
1900	124,148	1780	—	44	9	58	29	9	76	139	47

\* Preston added to the Borough in 1874.

In Table VII. the relation of the prevalence of, mortality from, and case-mortality from the three chief infectious diseases according to age is shewn.

TABLE VII.

Ages	Under 5.	5—	10—	15—	20—	25—	35—	45—	55—	65 and upwards	All Ages.
Estimated Population, 1900 ...	12,790	12,896	12,546	12,546	11,788	19,716	15,360	11,426	7,843	7,237	124,148
No. of Cases Notified. { Enteric Fever ...	2	10	14	7	15	23	7	3	2	—	83
{ Scarlet Fever ...	127	197	126	55	40	24	10	3	—	—	582
{ Diphtheria ..	195	238	97	43	33	54	13	4	2	2	681
No. of Cases per 1000 of Estimated Population. { Enteric Fever ...	·2	·8	1·1	·6	1·3	1·2	·5	·3	·3	—	·67
{ Scarlet Fever ...	12·7	15·3	10·1	4·4	3·4	1·2	·7	·3	—	—	4·69
{ Diphtheria ...	15·3	18·5	7·8	3·5	2·8	2·7	·9	·4	·3	·3	5·50
Deaths per 100 Persons attacked. { Enteric Fever ...	—	10·0	—	—	6·6	8·7	(71·4)	(66·6)	(50·0)	—	—
{ Scarlet Fever ...	5·5	1·0	—	—	2·5	8·3	—	—	—	—	—
{ Diphtheria ...	22·5	7·5	5·1	4·6	3·0	1·8	7·7	—	—	—	—

(The rates based on too small a number of cases to be trustworthy, are enclosed in brackets.)

## THE NOTIFICATION OF INFECTIOUS DISEASES.

On March 1st, 1891, the Infectious Diseases (Notification) Act was adopted.

The returns furnished to me under this Act show that the number of *cases* of Infectious Diseases notified during 1900 was :—Diphtheria, 681 ; Scarlet Fever, 582 ; Enteric Fever, 83 ; Erysipelas, 96 ; Puerperal Fever, 2.

The above is the number of supposed *cases* of infectious disease. Further observation in a certain proportion of these led to a revision of the diagnosis.

Seven cases of Diphtheria, 3 of Erysipelas, 2 of Scarlet Fever, were notified severally by two doctors, chiefly in connection with their removal to hospitals.

The total number of notifications (including 10 by myself) was 1,456, as compared with 1,815 in 1899. Of these, 207 occurred in public medical practice—the amount payable for the certificates being £10 7s. ; while 1,239 occurred in private medical practice—the amount payable being £154 17s. 6d. The total amount paid for notification certificates was £165 4s. 6d.

The cost of administering the Infectious Diseases (Notification) Act in each complete year since its adoption in Brighton, is as follows :—

YEAR.	COST OF NOTIFICATION FEES PAID TO MEDICAL PRACTITIONERS PER 1,000 OF POPULATION.								
								s.	d.
1892 ...	...	...	...	...	...	...	...	11	3
1893 ...	...	...	...	...	...	...	...	17	3
1894 ...	...	...	...	...	...	...	...	10	0
1895 ...	...	...	...	...	...	...	...	10	1
1896 ...	...	...	...	...	...	...	...	11	9
1897 ...	...	...	...	...	...	...	...	12	0
1898 ...	...	...	...	...	...	...	...	18	0
1899 ...	...	...	...	...	...	...	...	32	5
1900 ...	...	...	...	...	...	...	...	26	7

For particulars as to the notification of Phthisis, see page 57.

## SMALL POX.

Brighton has happily maintained its immunity during 1900 from cases of Small Pox. The continuance of freedom from a serious outbreak of this disease depends upon three factors : (a) the amount of Small Pox in other parts of the country, particularly London ; (b) the state of vaccination of the community ; (c) the prompt recognition of any accidentally imported case and its early isolation. I have repeatedly intimated to the medical practitioners my readiness and anxiety to see every suspicious case, and it is, I believe, largely owing to the



promptness on their part to recognise the possibility of Small Pox that we owe our favourable record during the past 15 years.

The Vaccination Act of 1898, introduced modifications in the arrangements for vaccination, the operation of which may be said to be still on trial, having only begun with 1899. From a recent return supplied by Mr. Clifford, it appears that in the Parish of Brighton in 1898, the number of births was 2,622, and the total cost of vaccination £204 13s. 2d., and 1,384, or 52·7 per cent. were successfully vaccinated; 367 or 14·0 per cent. died unvaccinated; certificates of conscientious objection had been received in respect of 29, or 1·1 per cent.; and 842 or 32·1 per cent. had been postponed by medical certificate, removals and otherwise not accounted for, at the end of the year. For 1899, the figures were: births, 2,578; total cost of vaccination, £411 6s. 9d.; successfully vaccinated, 1,839 or 71·3 per cent.; died unvaccinated, 360 or 13·9 per cent.; conscientious objections, 51, or 1·9 per cent.; postponed, 328, or 12·7 per cent. These figures are much below those for former years, the percentage in 1894 having been 80·9: and some apprehension is justifiable that continued neglect in this respect by a large section of the population may land the town into a heavy calamity should Small Pox at any time get a hold on a portion of the inhabitants before the nature of the disease is promptly recognised.

#### SCARLET FEVER.

The incidence of Scarlet Fever since notification came into operation is shewn in the following table. The epidemic of 1899 declined during 1900, and has now almost entirely disappeared (March, 1901).

					Number of cases per 100,000 of population.	Number of deaths per 100,000 of population.	Case-mortality Number of deaths per 100 cases notified.
1892	...	...	...	...	321	7	2·1
1893	...	...	...	...	406	9	2·2
1894	...	...	...	...	185	3	1·6
1895	...	...	...	...	163	4	2·5
1896	...	...	...	...	206	5	2·3
1897	...	...	...	...	269	10	3·7
1898	...	...	...	...	302	6	2·0
1899	...	...	...	...	662	8	1·2
1900	...	...	...	...	469	9	2·1

In reviewing the facts of recent scarlatinal prevalence, the most prominent feature is its extreme mildness. This has, in fact, been the chief impediment in preventing its spread, many cases having been overlooked and allowed to attend school while in an infectious condition. The question arises whether the town obtains, under the circumstances of the extreme mildness of the present

type of the disease, a sufficient return for the large sum of money spent in isolating patients suffering from it in the Borough Sanatorium. For Brighton, there can be but one answer to this question. It is of the utmost importance for its reputation that every infectious case, which cannot be efficiently isolated at home, shall be treated in the Sanatorium. For all communities, including Brighton, the isolation in hospital, I believe, tends to mitigate the virulence of the disease, and has had a material, though not the only influence, in bringing about the present benign type. The utility of the isolation hospital may be further gauged by Tables A and B, dealing with our experience in 1900.

TABLE A.

*Subsidiary Cases of Scarlet Fever in Households from which the First Patient was removed to Hospital before the onset of the Second Patient's attack.*

Number of Days elapsing between—									
Onset of First Case and of Second Case.					Removal of First Case and Onset of Second Case.				
Days.	...	...	...	Cases.	Days.	...	...	...	Cases.
2	...	...	..	1	1	...	...	...	4
3	...	...	...	4	2	...	...	...	5
4	...	..	...	2	3	...	...	...	1
5	...	...	...	2	4	...	...	...	3
6	..	...	...	2	5	...	...	...	1
7	..	...	...	3	6	...	..	...	1
8	...	...	...	1	7	...	...	...	1
10	...	..	...	1	8	...	...	...	1
11	...	...	...	1	10	...	...	...	1
13	...	...	...	2	11	..	...	...	1
15	...	..	...	1	12	...	...	...	1
17	..	...	...	1	14	...	...	...	1
21	...	...	...	1	29	...	...	...	1
29	...	...	...	1	31	...	...	...	1
33	...	...	...	1	46	...	...	...	1*
69	...	...	...	1	67	...	...	...	1†
				25					25‡

\* The first patient had not returned from hospital.

† The first patient had returned from hospital four weeks before the onset of the second patient's attack, and had been perfectly well in the meantime, as had also her young sister, aged five years, who had been in intimate contact with her during the four weeks. The second patient was a dressmaker. Five days after the second patient, this young sister also failed with Scarlet Fever.

‡ In addition to the above, six tertiary cases originated in the above houses at intervals of from one to four days after the second cases; and a fourth case started two days after the tertiary case. This makes the total number of subsidiary cases in this group thirty-two

TABLE B.

*Subsidiary Cases of Scarlet Fever in Households from which the Second Patient was removed as early as, or earlier than, the First Patient.*

Number of Days elapsing between Onset of First and Second Case.

							Cases.
Same day	..	...	...	..	...	...	4
1 day	...	..	...	...	...	...	4
2 days	...	...	...	...	...	...	4
4 „	...	...	...	...	...	...	3
5 „	...	...	...	...	...	...	
7 „	...	...	...	...	...	...	2
10 „	...	...	...	...	..	...	1
14 „	...	...	...	...	...	...	
16 „	...	...	...	...	...	...	1
18 „	...	...	...	...	...	...	1
19 „	...	...	...	...	...	...	1
							<u>25*</u>

\* In addition to the above, six tertiary cases originated in the above houses on the same day, at intervals of from two to thirteen days after the second, and one-fourth at the end of eight days from the onset of the third case, making the total number of subsidiary cases in this group thirty-two.

Table B includes a number of instances in which the first case was unrecognised, or for other reasons unnotified at an early stage. It also shows that more than half of the secondary cases were infected either simultaneously with the first, or so soon afterwards as to be practically unpreventable.

TABLE C.

*Table of Subsidiary Cases of Scarlet Fever where Home Treatment was adopted.*

Number of Days elapsing between Onset of											
First and Second Case.				Second and Third Case.				Third and Fourth Case.			
			Cases.				Cases.				Cases.
Same day	...	...	1	Same day	...	...	3	Same day	...	...	2
2 days...	...	...	1	1 day	...	...	1	3 days	...	...	1
4 „	...	...	1	11 days..	.	...	1	7 „	...	..	1
6 „	...	...	1	16 „	...	..	1				
7 „	...	...	2								
12 „	...	..	1								
13 „	...	...	1								
14 „	...	...	1								
15 „	..	...	1								
16 „	...	...	2								
18 „	...	...	1								
			<u>13</u>				<u>6</u>				<u>4</u>

The total number of cases of scarlet fever notified during 1900 was 582, of whom 511, or 87·8 per cent., were removed to the isolation hospital; and 71, or 12·2 per cent., were treated at home. Thus, under group A, removal of the first patient failed to prevent 32 subsidiary cases out of a total of 511 hospital-treated cases, or 6·2 per cent. Under group B, similarly 6·2 per cent. of

subsidiary cases occurred ; while in group C, the subsidiary cases formed 32.1 per cent. of the total home-treated cases. This remarkable difference between home-treated and hospital-treated cases does not fully express the truth. In group A it is probable that all secondary cases originating more than seven days after the removal of the first, were due either to independent infection from the same source as the first, or, rarely, to some incompleteness in disinfection. On this assumption only sixteen secondary cases were infected by the first before their removal to the hospital, or 3.1 per cent. of the total hospital-treated patients. The remaining 9.3 per cent. of subsidiary cases among those treated in hospital (groups A and B) do not reflect upon the excellency of the work done by the hospital, but indicate failure to recognise the first case, either at all or until the second case failed ; or they indicate neglect to isolate when the diagnosis has been made.

The following figures relate to 1899-1900. For several years past I have kept, as far as practicable, a record of the persons in each household invaded by each of the chief infectious diseases, who have not previously suffered from the disease in question. By this means I am able to state the rate of incidence of scarlet fever among the occupants of households invaded by it. In the following table the households have been classified, in accordance with the fact as to whether the first patient was or was not removed to hospital. Where more than one family live in the same house, the numbers are stated separately. Only private houses have been taken ; institutions, hotels, etc., having been excluded.

TABLE D.

## I.—Cases Removed to Hospital.

		Number of Cases of Scarlet Fever.		Number of Persons in the same Family who escaped having Scarlet Fever.		Number of Persons in Second and Third Families in the same house who escaped having Scarlet Fever.	
		Under 20.	Over 20.	Under 20.	Over 20.	Under 20.	Over 20.
First Period	...	478	29	951	899	217	412
Second „	...	276	37	617	639	114	331
		754	66	1,568	1,538	331	743

## II.—Cases Treated at Home.

First Period	...	68	5	74	125	8	39
Second „	...	51	7	40	98	11	15
		119	12	114	223	19	54



*Number attacked per 100 Persons not previously having had Scarlet Fever.*

*I.—Cases removed to Hospital.*

		Attack-rate among those living in the same Family, and aged		Attack-rate among those living in the same House, and aged	
		Under 20.	Over 20.	Under 20.	Over 20.
First Period	...	33·5	3·1	29·0	2·2
Second „	...	30·9	5·5	27·4	3·7
Both Periods	...	32·5	4·1	28·5	2·8
<i>II.—Cases treated at Home.</i>					
First Period	...	47·9	3·8	45·3	2·9
Second „	...	56·0	6·7	50·0	5·9
Both Periods	...	51·1	5·1	47·2	4·1

These observations are unselected, inspection cards having been rejected only when the necessary details as to age, &c., had been unobtainable.

The contrast between the attack-rates in houses in which hospital isolation was employed and the houses in which this was not employed, is in reality much greater than is shown in table D. Home-treated patients were so treated because they were of a higher social status than others, and apparently could be safely isolated at home; or because there were no other children in the house. On the contrary, the hospital-treated cases include a considerable proportion in which several children were simultaneously removed to hospital, or in which third, fourth and even fifth children were affected, owing to non-recognition of the first case.

As it stands, however, Table D indicates that hospital isolation has been the means of preventing a large number of cases of scarlet fever. This is a double gain; mere postponement of an attack means on the average a smaller likelihood of a fatal result at a higher age; and the susceptibility to attack diminishes with each additional year of life.

In the following table the proportion of cases of scarlet fever treated at home, and the relative fatality among home-treated and hospital-treated cases, is given :—

TABLE VIII.

Year.	Admissions to Sanatorium per cent. of total cases notified.	Case-Mortality, per 100 cases.	
		Among Patients treated at Home.	Among Patients treated in the Sanatorium.
1891 (from Mar. 1st.	70.0	—	—
1892 ... ..	77.7	6.0	2.5
1893 ... ..	70.6	2.5	1.6
1894 ... ..	82.2	2.6	1.3
1895 ... ..	77.4	2.3	2.6
1896 ... ..	82.6	2.3	2.0*
1897 ... ..	81.6	3.3	3.7
1898 ... ..	82.7	3.1	1.6
1899 ... ..	85.5	3.7	0.9
1900 ... ..	87.8	5.6	1.7

\* Including one death after the patient returned home.

### OUTBREAK OF SCARLET FEVER DUE TO INFECTED MILK.

In January, 1900, an outbreak of Scarlet Fever was traced to infected milk brought into the Borough under the following circumstances. On the 10th, one case of Scarlet Fever supplied with milk from A, and on the 12th two cases supplied with milk, one from A and one from C, were notified. No other cases were notified in connection with the same milk supplies until January 20th, when a fourth case (supplied from A) was notified, and on the 22nd a fifth case, supplied with milk from B. A, B and C are independent retailers of milk in different parts of Brighton (north, central and north-east). On the morning of the 23rd, two cases were notified having milk supply A and two having milk supply B. One of the two former was the son of the milk vendor A. On visiting A's shop I found an unsatisfactory state of things. Milk cans were not being properly scalded out; this important work was left to two small boys; and there was the strongest reason for suspecting that not infrequently dirty milk cans were used in retailing milk. The state of matters found in connection with A's business led to my sending the following circular letter to all milk vendors in connection with whose business infectious cases had occurred.

*Confidential.*

DEAR SIR,—A number of cases of infectious illness have occurred in houses supplied by you with milk. In view of this fact, it is most important that the most rigid precautions should be taken by you, especially upon the following points :—

1. The milk cans must be washed in actually boiling water, and the cloth which is used for wiping them must also be frequently placed in actually boiling water.
2. No milk cans should be left at any house where the occurrence of a case of infectious disease is suspected.
3. It has come to my notice that milk cans which have been brought from one house are occasionally used in the same round at another house without being previously washed. This is a most dangerous practice.
4. Serious danger has recently arisen in consequence of young employés engaged in carrying out milk, having had sore throats or a mild attack of scarlet fever which did not receive medical attention. It is of the utmost importance that any employé who has a sore throat or any suspicious illness should be seen by a doctor and not allowed to return to work until a medical certificate of freedom from infection is obtained.

I am most anxious to co-operate with you and take all necessary precautions without the slightest publicity, and I shall be glad, therefore, if you will strictly enforce the above precautions.

Yours faithfully,

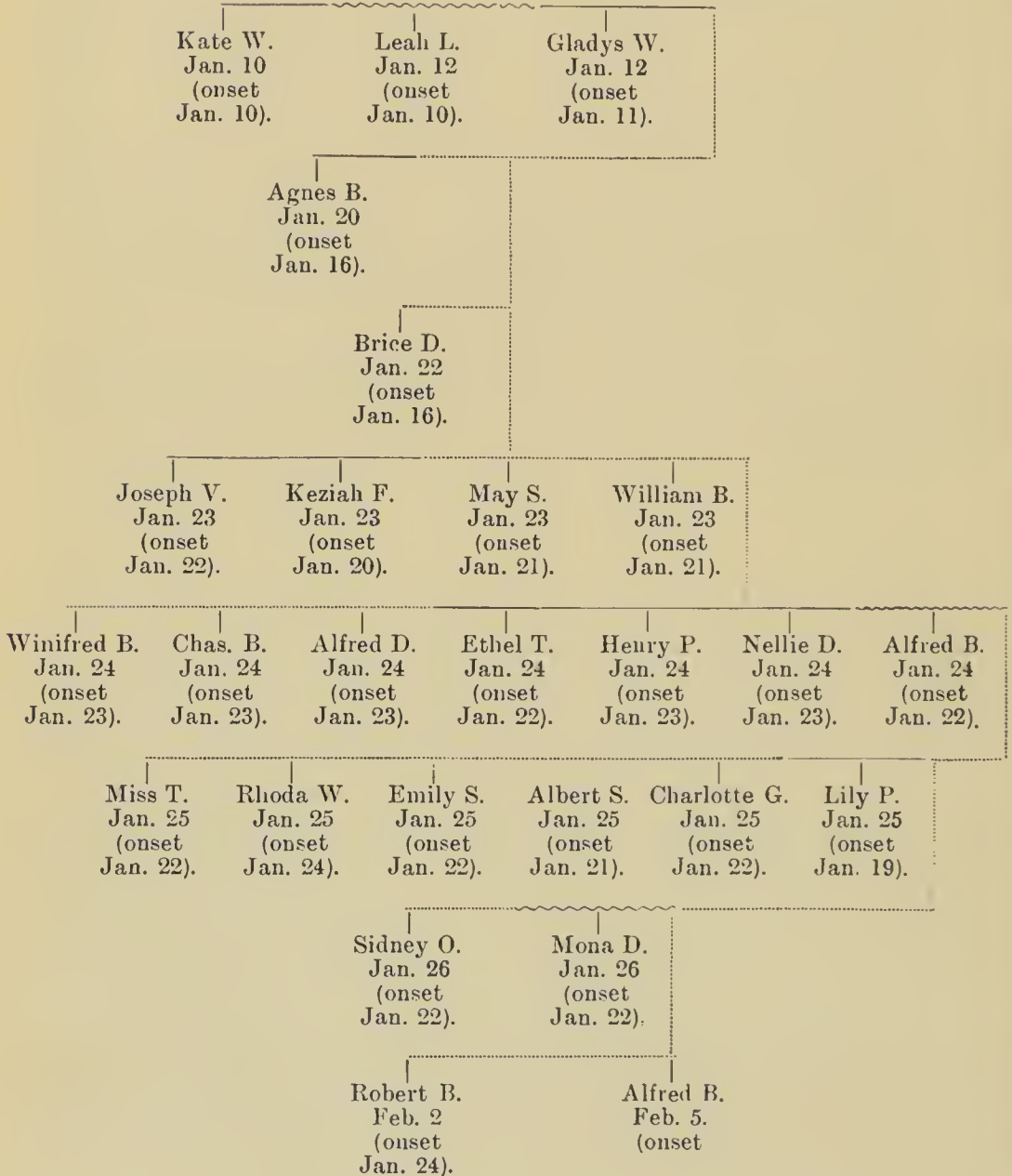
Medical Officer of Health.

A was informed on the 24th that if any further cases were notified next day, it might become necessary to stop his milk supply, and special attention to cleanliness, &c., was enjoined meanwhile. During that day, three further cases of scarlet fever were notified among his customers, three among B's, and one among C's customers. On the 25th, one further case was notified among A's customers, and five among B's customers. Up to this point, as a considerable number of cases due to personal infection were occurring elsewhere in the town, the only milk supply suspected had been that of A. The cases notified on the 25th among B's customers, led me to inquire into the source of his milk, which was now found to be X, the same as that of A. It also led to a revision of the facts respecting the first three Brighton cases shown on the accompanying chart. In one of these cases the milk supply had been stated to be derived from Y, but it was now found that while this was true of the afternoon supply, the morning's milk came from A. On further inquiry, the milk retailer C was found to derive his milk also from the farmer X. On the 26th, two further cases of scarlet fever were notified, one among B's and one among C's customers, and on the 2nd February two among B's customers. The outbreak then abruptly ceased. The dates of onset of each case are given in brackets in the diagram, the dates of notification immediately under each name.

*Scarlet Fever cases connected with Milk from X farm.*

B. came to Z. from H.  
with Scarlet Fever,  
December 11th, 1899.

R., milker at X farm  
(onset Jan. 1st, 1900),  
returned to work Jan. 6.



The three milk retailers are indicated as follows :—A. ——— B. ———— , C. ~~~~~.



The following statement summarises the distribution of the cases of Scarlet Fever in this milk outbreak among the customers of the milk vendors in Brighton supplied by X.

Dairymen.	Periods within which the Milk Cases fell ill.	Number of Cases of Scarlet Fever among the Customers.	Number of Gallons of X.'s Milk Sold Daily.	Number of known Customers.	Remarks.
A.	Jan. 10-23	9	40	128	<i>Plus a large counter trade.</i>
B.	Jan. 16-24	13	15	700	No counter trade ; and a large proportion of B.'s milk is supplied from other sources.
C.	Jan. 10-22	3	4	16	<i>Plus counter trade.</i>
D.	—	—	1½	3	<i>Plus a little counter trade.</i>

The real number of customers among each of the above milk vendors, except B, could not be ascertained, owing to the unknown but unequal amount of counter-trade done by them. It is clear, however, that the distribution of the contagion was not equal in all the supplies ; C suffering more in proportion to the number of gallons supplied than A, and D's few customers escaping entirely. The excessive proportion in which B's customers suffered is probably explicable on the ground that X's milk supplied to B was mixed with nearly six times as much milk from other uninfected sources before being distributed.

*Action taken.*—On the morning of the 25th I telegraphed to X, asking him to delay the delivery of his afternoon's supply of milk until I arrived. On the way to his farm, I met the carter bringing 17½ gallons of milk from X's farm into Brighton, and with some difficulty persuaded him to return with me to the farm. The telegram had not then reached X. After interviewing X, he consented that I should buy all his milk, including the milk which I had intercepted, for the next five days at the rate of 1s. a gallon, and during these days, Inspector Cuckney went twice daily to the farm to see the milk emptied on to the land. A careful inquiry into the condition of X's employes, elicited the following facts with regard to R, one of his three milkmen. From the 1st to the 6th day of January, R was away from his work with what he described as a severe cold. On further questioning, he stated that he vomited at the onset, that he had a bad throat and headache, and could swallow nothing except bread and milk. His wife stated that he was extremely feverish, but no rash was looked for. On examination, R's thighs showed undoubted flaky

desquamation, and both hands and feet were also desquamating. R was at once removed to the Brighton Sanatorium, although X's farm is outside the borough. The amount paid to X for milk during these five days was £11 13s. During this period, R's cottage was thoroughly disinfected, and pressure was brought to bear on X to remove his 32 cows from the shed in which for nearly three weeks after his return to work, R had been milking them, and daily feeding the cows and cleansing the stalls.

It may be asked why, instead of thus compensating the farmer for the loss of his milk, action was not taken under Sec. 4 of the Infectious Disease (Prevention) Act, in connection with which no compensation is required. Compensation would furthermore appear, as in the above instance, to be putting a premium on culpable negligence. The answer is that the machinery is so clumsy and slow that several days would have necessarily elapsed before we could have obtained the powers under Sec. 4 of the above Act. The present instance clearly proves this. Towards the end of the five days during which we were paying for the privilege of destroying X's milk, he had still made default in complying with my requirements to move his 32 cows to another shed and to thoroughly cleanse and disinfect the shed. Under these circumstances, I commenced to put into operation the powers of Sec. 4 of the Infectious Disease (Prevention) Act. Although I was familiar with the condition of X's shed, it was necessary to begin *de novo*. I therefore made application on the 29th January to a Justice of the Peace of the county of Sussex, and received from him written authority to inspect X's dairy. A special meeting of the Sanitary Committee was called for the 30th. I made a formal report to this meeting, recommending as the result of my inspection on the 29th that notice should be served on X to "shew cause why an Order should not be made requiring him not to supply any milk from the above dairy within the County Borough of Brighton until such Order has been withdrawn by the Local Authority." This notice would have required confirmation by the Town Council; but luckily at this point X succumbed and carried out all the measures required. The sudden stopping of the epidemic is well shewn in the diagram.

*Source of the Outbreak.*—The cowman R had not left the farm for several weeks before the onset of his attack of scarlet fever, and no other cases of scarlet fever could be traced on the farm. The cows appeared to be healthy in every respect. Further inquiry elicited the fact that at a house within 200 yards of the farm, a boy B was being nursed for scarlet fever. This boy failed with scarlet fever in the neighbouring town of H on December 8th, 1899, and was removed to the above house on the 11th. He and the nurse attending him, who were the only occupants of the house, were supplied with milk by X, the milk being brought to the house by the gardener. The nurse occasionally took the milk can and placed it on a table outside the sick room. It was never, she stated, taken into the room. The cowman R obtained a daily supply of milk from the farm

house X, but he is stated to have always employed his own milk can. I am of opinion that infection was probably conveyed from the above house to R, but the exact method remains doubtful.

### DIPHTHERIA.

The incidence of diphtheria in Brighton since notification came into operation, is shewn in the following table. The total amount was practically the

					Number of infectious cases per 100,000 of population.	Number of deaths per 100,000 of population.	Case-mortality Number of deaths per 100 cases notified.
1892	...	...	...	...	94	19	20·2
1893	...	...	...	...	157	30	18·4
1894	..	...	...	...	104	22	21·1
1895	...	...	...	...	171	15	8·8
1896	...	...	...	...	141	16	10·9
1897	...	...	...	...	154	10	6·5
1898	...	...	...	...	311	18	5·8
1899	...	...	...	...	541	50	9·2
1900	...	...	...	...	548	56	10·2

#### *Causes of Epidemic Diphtheria.*

same as in 1899. As is well known, diphtheria has become increasingly prevalent in England during the last ten years. That this is not owing to defective house sanitation, or to defective sewerage, or to imperfections in the removal of organic refuse from dwelling-houses, has been made clear by the impartiality with which the disease has attacked towns and districts of good and defective sanitation. Defective sanitation and overcrowding act probably in the direction of increasing the intensity of the disease and facilitating its spread, but do not explain its recent prevalence in widespread epidemics throughout the country. I have, in a work on Epidemic Diphtheria (1898), shewn that such epidemics occur chiefly, if not solely, in years in which the rainfall is deficient, and that the epidemics are on the largest scale when three or more years of deficient rainfall immediately follow each other. The continuous deficiency of rainfall in Brighton for a long series of years is shewn by the figures on page 53, and a similar deficiency has been general throughout a large part of England and other countries in which diphtheria has been epidemic. No such continuous deficiency of rainfall has occurred since 1855-59 and 1861-64, when the last great epidemic of diphtheria occurred in this country.

This wider view as to the conditions under which diphtheria becomes widely epidemic is not stated with any intention of disproving the occurrence or



minimising the importance of personal infection in spreading the disease. Diphtheria is undoubtedly spread chiefly by personal infection, but in certain years personal infection is more potent than in others, and then diphtheria becomes epidemic. So long as medical knowledge of the life-history of the diphtheria-bacillus remains, as at present, incomplete, we cannot hope entirely to prevent epidemics, but must content ourselves with using every effort to minimise them. The prevention of epidemics is somewhat like that of fires. Neither can be entirely prevented. Certain fires (in the absence of lightning-conductors) cannot be entirely prevented; and a large number of additional causes of spread of fire—and of epidemics,—such as carelessness, lack of promptitude in action, and so on, are always likely to be prevalent. From the public standpoint, the question is whether every practicable means has been adopted, and carried out promptly and continuously. As the account of the experience of the last two years proceeds, it will, I think, become clear that no efforts have been spared on the part of the Sanitary Committee, or of the responsible officials, to minimise the spread of infection. Some preliminary

*Relative Experience of Brighton.*

light is thrown on this by a statement of the relative experience of various towns, the death-rate of the year of greatest prevalence of the disease being given in each instance. First may be taken other towns south of London. These are indicated by letters, to avoid the appearance of invidious comparison.

				<i>Maximum death-rate per 100,000 Inhabitants.</i>		<i>Year in which this maximum occurred.</i>
Brighton	...	...	...	56	...	1900
Other southern towns—A	...			99	...	1898
	B	...		229	...	1890
	C	...		60	...	1892
	D	...		83	...	1893
	E	...		53	...	1900
	F	...		208	...	1896

Among the great towns the experience of diphtheria has been very diverse, some having escaped much more lightly than others. The infection appears to travel slowly, and, judging by local experience, requires more than a single year for its entire elimination. During 1900, the following great towns suffered most severely :—

					<i>Death-rate per 100,000.</i>
Leicester	...	...	...	...	150
Sheffield	...	...	...	...	126
Leeds	...	.	...	...	78

In 1899, the highest death-rates from diphtheria per 100,000 of population were 128 in Sheffield, 136 in Swansea, 106 in Leicester; in 1898, the highest were 122 in Swansea and 73 in Cardiff; in 1897, the highest were 62 in Wolverhampton and 57 in Blackburn; in 1896, the highest were 70 in West Ham and 60 in London, and so on. London is a province of houses rather than a single town; hence it happens that, as I have shewn in the book previously referred to, an epidemic of diphtheria may be raging in one portion and absent from another. For this reason it is preferable to state its death-rates from diphtheria for separate districts. Thus, during 1899, while the diphtherial death-rate for the entire metropolis was only 43 per 100,000, it was as low as 8 in some districts, stretching up to 61 in Camberwell, 103 in Bermondsey, and 104 in Southwark.

In 1893, the death-rate from diphtheria in London was 74 per 100,000, varying from 19 in Plumstead to 106 in Battersea, 116 in Clerkenwell and 137 in St. George-in-the-East.

The preceding statistics sufficiently indicate that, although Brighton has experienced for two years an epidemic of diphtheria, it has never got beyond control nor reached the severity experienced in many other communities.

The distribution of the cases according to *age* is shewn in table VII.

The *fatality* was somewhat higher than in the preceding year. This may be due to a greater virulence of the disease, or to delay in notification, and consequent delay in treatment by antitoxic serum, which has an enormous influence in diminishing fatality when used at an early stage of the disease. I am inclined to think that many mild cases remained unnotified, which again would increase the apparent fatality per 100 cases notified.

The distribution of the cases in *households* was as follows:—

Total cases notified during 1900	...	...	...	681
Of these there were in 493 houses, 1 case each	...			493
„ „ 51 „ 2 cases „	...			102
„ „ 12 „ 3 „ „	...			36
„ „ 8 „ 4 „ „	...			32
„ „ 2 „ 5 „ „	...			10
„ „ 1 house, 8 „ „	...			8 (a School)
				681



The cases occurred in successive *weeks* of the year as follows :—

TABLE IX.

*Number of Cases of Diphtheria during 1900, of which the date of onset was within the year.*

Week ending.	No. of Cases.	Week ending.	No. of Cases.	Week ending.	No. of Cases.
Jan. 6 ...	16	May 5 ...	12	Sep. 1 ...	6
„ 13 ...	28	„ 12 ...	8	„ 8 ...	6
„ 20 ...	20	„ 19 ...	11	„ 15 ...	14
„ 27 ...	14	„ 26 ...	12	„ 22 ...	32
Feb. 3 ...	13	June 2 ...	15 <sup>2</sup>	„ 29 ...	29
„ 10 ...	16	„ 9 ...	15	Oct. 6 ...	20
„ 17 ...	8	„ 16 ...	8	„ 13 ...	19 <sup>5</sup>
„ 24 ...	12	„ 23 ...	15	„ 20 ...	18 <sup>6</sup>
Mar. 3 ...	8	„ 30 ...	19 <sup>3</sup>	„ 27 ...	21
„ 10 ...	10	July 7 ...	5	Nov. 3 ...	11
„ 17 ...	7	„ 14 ...	14	„ 10 ...	6
„ 24 ...	5	„ 21 ...	20 <sup>4</sup>	„ 17 ...	10
„ 31 ...	9	„ 28 ...	9	„ 24 ...	17
Apr. 7 ...	9 <sup>1</sup>	Aug. 4 ...	7	Dec. 1 ...	10
„ 14 ...	3	„ 11 ...	3	„ 8 ...	13
„ 21 ...	3	„ 18 ...	4	„ 15 ...	10 <sup>7</sup>
„ 28 ...	2	„ 25 ...	5	„ 22 ...	11 <sup>8</sup>
				„ 29 ...	14

<sup>1</sup> Schools closed for Easter, from April 12th to 23rd; therefore school influence ceased April 17th, and would shew itself again on or about April 28th.

<sup>2</sup> Schools closed for Whitsuntide, June 1st to 11th.

<sup>3</sup> Preston Road School, Infants' Department, closed from June 26th to July 13th.

<sup>4</sup> All schools closed, July 20th to August 27th.

<sup>5</sup> Babies Class of Infants' Department of Rugby Road Board School closed from October 16th to November 5th.

<sup>6</sup> Babies' Class and 4th Class of Infants' Department of Pelham Street Board School closed from October 23rd to November 12th.

<sup>7</sup> Infants' Department of Preston Road School closed on December 14th until after Christmas.

<sup>8</sup> All schools closed on December 21st.

*Relation to School Attendance.*—Having already stated that personal infection is the determining cause of the spread of diphtheria, it might be anticipated that school attendance would play an important part in determining the extent of the epidemic. The following tables show the incidence of diphtheria on each Elementary School in the town.

TABLE IX.

*Number of Cases of Diphtheria among Children attending Elementary Schools in Brighton.*

## A.—BOARD SCHOOLS.

	1899.				No. in average attendance.	1900.				No. in average attendance.
	Boys.	Girls.	Infants.	Mixed.		Boys.	Girls.	Infants.	Mixed.	
Bentham Road ... ..	—	—	5	—	236	—	—	3	—	245
Circus Street ... ..	—	1	3 <sup>(2)</sup>	—	506	—	—	1 <sup>(1)</sup>	—	484
Elm Grove ... ..	5	4	6	—	949	2	2 <sup>(2)</sup>	6	—	979
Fairlight Place ... ..	11 <sup>(1)</sup>	12 <sup>(7)</sup>	23 <sup>(5)</sup>	—	889	4 <sup>(2)</sup>	4	10	—	890
Finsbury Road ... ..	3	—	4	—	874	1	2	2	—	871
Hanover Terrace... ..	—	1	3	—	564	1 <sup>(1)</sup>	1	3	—	546
Middle Street ... ..	8 <sup>(1)</sup>	6	4	—	662	—	—	2 <sup>(4)</sup>	—	654
Pelham Street ... ..	2	3	6	—	655	4	1	8 <sup>(1)</sup>	—	650
Preston Road ... ..	2	1	3	—	598	9 <sup>(2)</sup>	12 <sup>(3)</sup>	47 <sup>(10)</sup>	—	577
Queen's Park ... ..	—	1	2	—	814	1	1	3 <sup>(5)</sup>	—	761
Rugby Road ... ..	2	4 <sup>(1)</sup>	9	—	990	3	11 <sup>(5)</sup>	25 <sup>(4)</sup>	—	933
Richmond Street... ..	—	—	2	—	514	—	1	1	—	497
Stanford Road ... ..	4	4	8 <sup>(3)</sup>	—	674	1	1	5	—	683
York Place ... ..	3	5	—	—	1035	—	6	—	1*	920
	40 <sup>(2)</sup>	42 <sup>(8)</sup>	78 <sup>(10)</sup>	—	9960†	26 <sup>(5)</sup>	42 <sup>(10)</sup>	116 <sup>(25)</sup>	1	9690

\* Afflicted.

## B.—VOLUNTARY SCHOOLS.

	1899.				No. in Average Attendance.	1900.				No. in Average Attendance.
	Boys.	Girls.	Infants.	Mixed.		Boys.	Girls.	Infants.	Mixed.	
All Souls ... ..	—	—	2	—	397	—	—	—	—	392
Annunciation ... ..	1	2 <sup>(1)</sup>	6 <sup>(2)</sup>	—	473	1	2	5 <sup>(1)</sup>	—	460
Christ Church ... ..	1	4	2 <sup>(2)</sup>	—	373	—	2	1	—	348
College ... ..	—	1	4 <sup>(4)</sup>	—	257	—	2 <sup>(1)</sup>	2	—	251
National, Central ... ..	4 <sup>(3)</sup>	5 <sup>(1)</sup>	14 <sup>(2)</sup>	—	722	1	2 <sup>(1)</sup>	6 <sup>(1)</sup>	—	679
Preston National ... ..	—	—	—	1	111	—	—	—	2 <sup>(2)</sup>	116
Richmond Buildings ... ..	1	1	1	—	319	1	1	2	—	326
St. Bartholomew's ... ..	—	1	1	—	461	—	2 <sup>(1)</sup>	8 <sup>(2)</sup>	—	442
St. John's ... ..	—	—	2	—	664	—	—	—	—	649
St. John the Baptist R.C. ... ..	—	—	1 <sup>(1)</sup>	—	200	—	—	—	—	222
St. Joseph's R.C. ... ..	—	—	—	1	103	—	—	—	—	113
St. Margaret's ... ..	—	2	—	—	163	—	—	—	—	170
St. Mark's... ..	—	1	—	—	305	1	—	—	—	311
St. Martin's ... ..	1	1	4 <sup>(2)</sup>	—	397	2	—	9 <sup>(1)</sup>	—	404
St. Mary's ... ..	—	—	—	—	474	—	1	3 <sup>(4)</sup>	—	473
St. Mary Magdalene R.C. ... ..	—	—	—	—	42	—	—	—	1	44
St. Nicholas ... ..	—	1	—	—	77	—	2	—	—	81
St. Paul's ... ..	1	1	5 <sup>(2)</sup>	—	270	—	1	2	—	284
St. Stephen's ... ..	1 <sup>(1)</sup>	—	—	—	226	—	—	—	—	214
Swan Downer's ... ..	—	1	—	—	45	—	—	—	—	32
Total ... ..	10 <sup>(4)</sup>	21 <sup>(2)</sup>	42 <sup>(15)</sup>	2	6079†	6	15 <sup>(3)</sup>	38 <sup>(9)</sup>	3 <sup>(2)</sup>	6017

† The average attendance given is the mean of the average attendance for the months of May and October.

TABLE X.

*Incidence of Diphtheria on each Elementary Day School in proportion to Average Attendances.*

## A.—BOARD SCHOOLS.

Name of School.	1899.		1900.	
	No. of cases per 100 children in average attendance in		No. of cases per 100 children in average attendance in	
	Entire School.	Infants' Dept.	Entire School.	Infants' Dept.
Bentham Road ... ..	—	2·1	1·2	1·2
Circus Street ... ..	·8	1·4	·2	·5
Elm Grove ... ..	1·6	1·8	1·0	1·7
Fairlight Place ... ..	5·2	5·7	2·0	2·7
Finsbury Road ... ..	·9	1·4	·6	·7
Hanover Terrace ... ..	·8	1·3	·9	1·5
Middle Street ... ..	2·7	1·9	·3	·9
Pelham Street ... ..	1·7	1·9	2·0	2·5
Preston Road ... ..	1·0	2·0	11·8	23·5
Queen's Park ... ..	·4	·6	·6	1·0
Rugby Road... ..	1·5	2·4	4·2	7·2
Richmond Street ... ..	·4	·9	·4	·4
Stanford Road ... ..	2·4	3·6	1·0	2·3
York Place ... ..	·8	—	·8	—

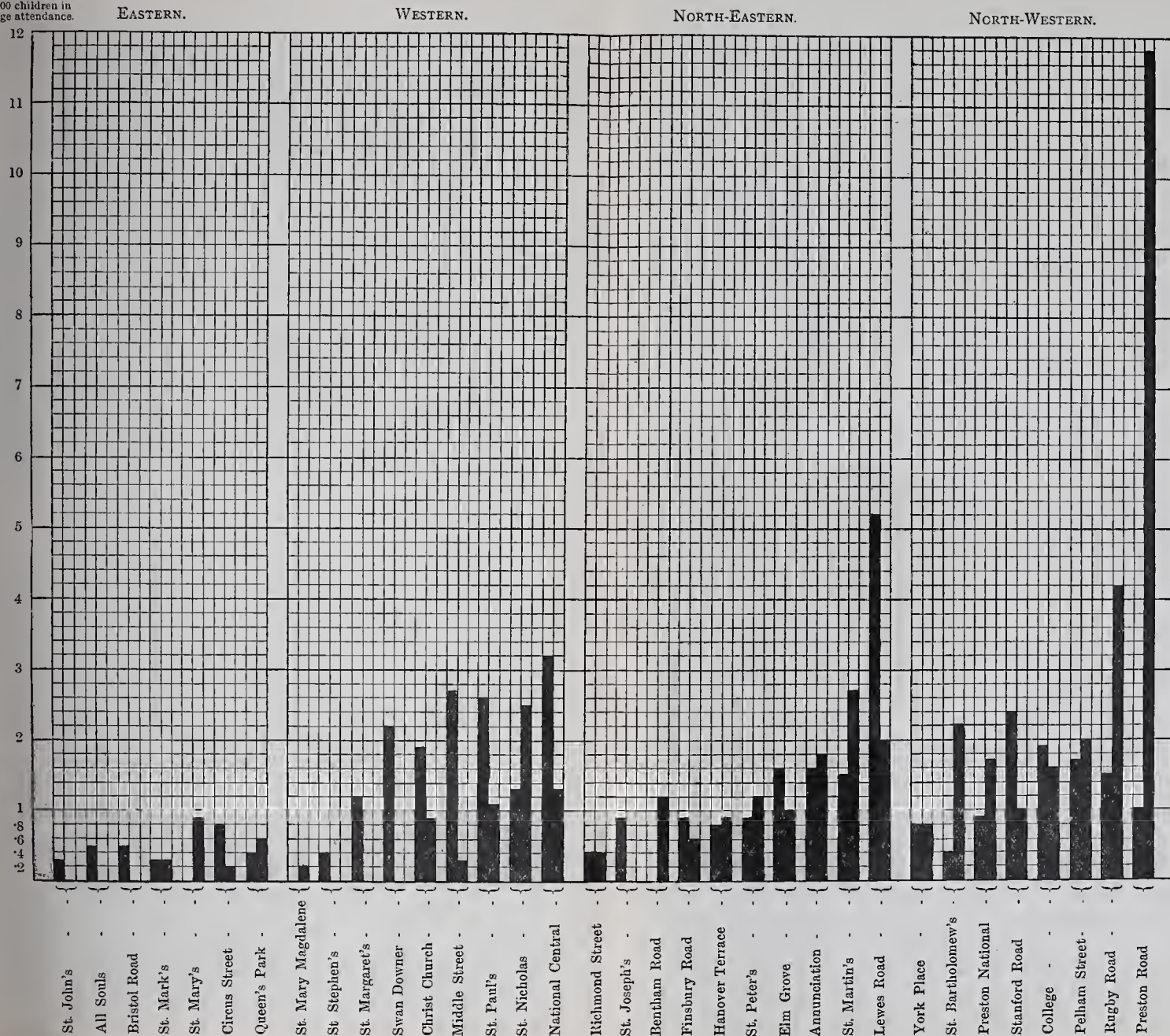
## B.—VOLUNTARY SCHOOLS.

Name of School.	1899.		1900.	
	No. of cases per 100 children in average attendance in		No. of cases per 100 children in average attendance in	
	Entire School.	Infants' Dept.	Entire School.	Infants' Dept.
All Souls' ... ..	·5	1·0	—	—
Annunciation ... ..	1·6	3·1	1·8	3·1
Christ Church ... ..	1·9	1·8	·9	·9
College ... ..	1·9	3·1	1·6	1·5
National, Central ... ..	3·2	5·7	1·3	2·7
Preston National ... ..	·9	—	1·7	—
Richmond Buildings ... ..	·9	1·2	1·2	2·0
St. Bartholomew's ... ..	·4	·5	2·2	4·9
St. John's ... ..	·3	·9	—	—
St. John the Baptist (R. C.)	·5	1·5	—	—
St. Joseph's (R. C.)... ..	·9	—	—	—
St. Margaret's ... ..	1·2	—	—	—
St. Mark's ... ..	·3	—	·3	—
St. Martin's ... ..	1·5	3·3	2·7	7·0
St. Mary's ... ..	—	—	·9	1·7
St. Mary Magdalene (R. C.)	—	—	·2	—
St. Nicholas ... ..	1·3	—	2·5	—
St. Paul's ... ..	2·6	4·9	1·1	—
St. Stephen's ... ..	·4	—	—	—
Swan Downer's ... ..	2·2	—	—	—



*Incidence of Diphtheria in Schools in different Districts of Brighton, stated in proportion to Average Attendance.*

Number of Cases  
per 100 children in  
average attendance.







The most striking feature of the above Tables is the greater prevalence of diphtheria among Board Schools. This is seen more clearly in the following summary of the experience of the last two years :—

TABLE XI.

*Incidence of Diphtheria on Children in Board and Voluntary Schools respectively in proportion to Average Attendance.*

	1899.		1900.	
	Number of Cases in entire School, per 100 Children in Average Attendance.	Number of Cases in Infants' Department, per 100 Children in Average Attendance in that Department	Number of Cases in entire School, per 100 Children in Average Attendance.	Number of Cases in Infants' Department, per 100 Children in Average Attendance in that Department
Board Schools ...	1·60	2·18	1·91	3·32
Voluntary Schools	1·24	2·07	1·03	1·97
Percentage Excess in Board over Voluntary Schools	30 %	6 %	86 %	69 %

Certain explanatory notes are required on the preceding tables.

(a) In working out the incidence of diphtheria on each School per 100 children in average attendance, the cases occurring in a household secondary to the attack of a scholar are not included. These cases are given in the Tables in brackets and excluded from the calculation, though a large proportion of them were also in attendance at school.

(b) No cases have been counted as ascribable to school infection, unless the onset was within five days of the last attendance at school.

The facts given in Table X. are shewn graphically in the following diagram. In this diagram the incidence of diphtheria on each school in proportion to average attendance for each of the years 1899 and 1900 is shewn in contiguous columns. Where a column is missing, no cases occurred in that year.

*Outbreak at Preston Road School.*—At this school only 6 cases of diphtheria occurred in 1899. In the first three months of 1900, 5 cases occurred ; in the four weeks ending April 8th, 2 cases occurred ; in the four weeks ending May 26th, 7 primary and 2 secondary cases ; in the five weeks ending June 30th, 14 primary and 2 secondary cases ; in the four weeks ending July 28th, 5 primary and 2

secondary cases. The Infants' Department of this School was closed, by order of the Sanitary Authority, from Tuesday, June 26th to Friday, July 13th, inclusive. The influence of school closure on this school is shewn by the following statement :—

*No. of Cases originating in Preston Road Schools.*

					Cases.
In the week ending	Saturday,	June	23rd	...	5
"	"	"	" 30th	...	2
"	"	"	July 7th	...	2
"	"	"	" 14th	...	0
"	"	"	" 21st	...	2
"	"	"	" 28th	...	1

{ both in Girls'  
Department.

All the cases, except those specially indicated, occurred in the Infants' Department. All the schools in the town were closed on the 20th of July. During August very few cases occurred (see page 30, Table IX.). The Boys' School reassembled on September 3rd, and the Infants' and Girls' Departments on the 10th of September.

*Number of Cases originating in Preston Road Schools (continued).*

					Cases.			
					Boys.	Girls.	Infants.	
In week ending	Saturday,	Sept.	1st	...	0	...	0	...
"	"	"	" 8th	...	1	...	0	...
"	"	"	" 15th	...	0	...	0	...
"	"	"	" 22nd	...	0	...	1	...
"	"	"	" 29th	...	2	...	1	...
"	"	"	Oct. 6th	...	0	...	0	...
"	"	"	" 13th	...	1	...	0	...
"	"	"	" 20th	...	0	...	0	...
"	"	"	" 27th	...	0	...	0	...
"	"	"	Nov. 3rd	...	0	...	1	...
"	"	"	" 10th	...	0	...	1	...
"	"	"	" 17th	...	0	...	0	...
"	"	"	" 24th	...	0	...	0	...
"	"	"	Dec. 1st	...	1	...	0	...
"	"	"	" 8th	...	0	...	0	...
"	"	"	" 15th	...	0	...	0	...
"	"	"	" 22nd	...	1	...	0	...

(and 2 secondary).

(and 3 secondary).

(and 2 secondary).

The history of this school was one of repeated re-infection by the attendance of children in an infectious condition. In the week ending September 22nd, four cases occurred. As there was special reason for suspecting that unnotified

cases existed in a particular street containing 83 houses, instructions were given to the teachers to exclude children from this street from attendance at school, and the following circular letter was addressed to each householder in the street :—

DEAR SIR,—Several cases of diphtheria have occurred in —— Street in the last few days, and I have reason to suppose that some slight cases have been overlooked, and have been the means of thus spreading the infection.

It is very important that any slight case of sore throat in your house should be at once attended to by a doctor, and I should be glad if you would show the doctor this note.

In view of the likelihood of carrying infection into school, I have asked the head teacher of each school to exclude all children coming from —— Street during the next fortnight. I hope you will co-operate with me in this matter, as by so doing I hope we shall be able to prevent the occurrence of any further cases among the children in —— Street.

Yours faithfully,

Medical Officer of Health.

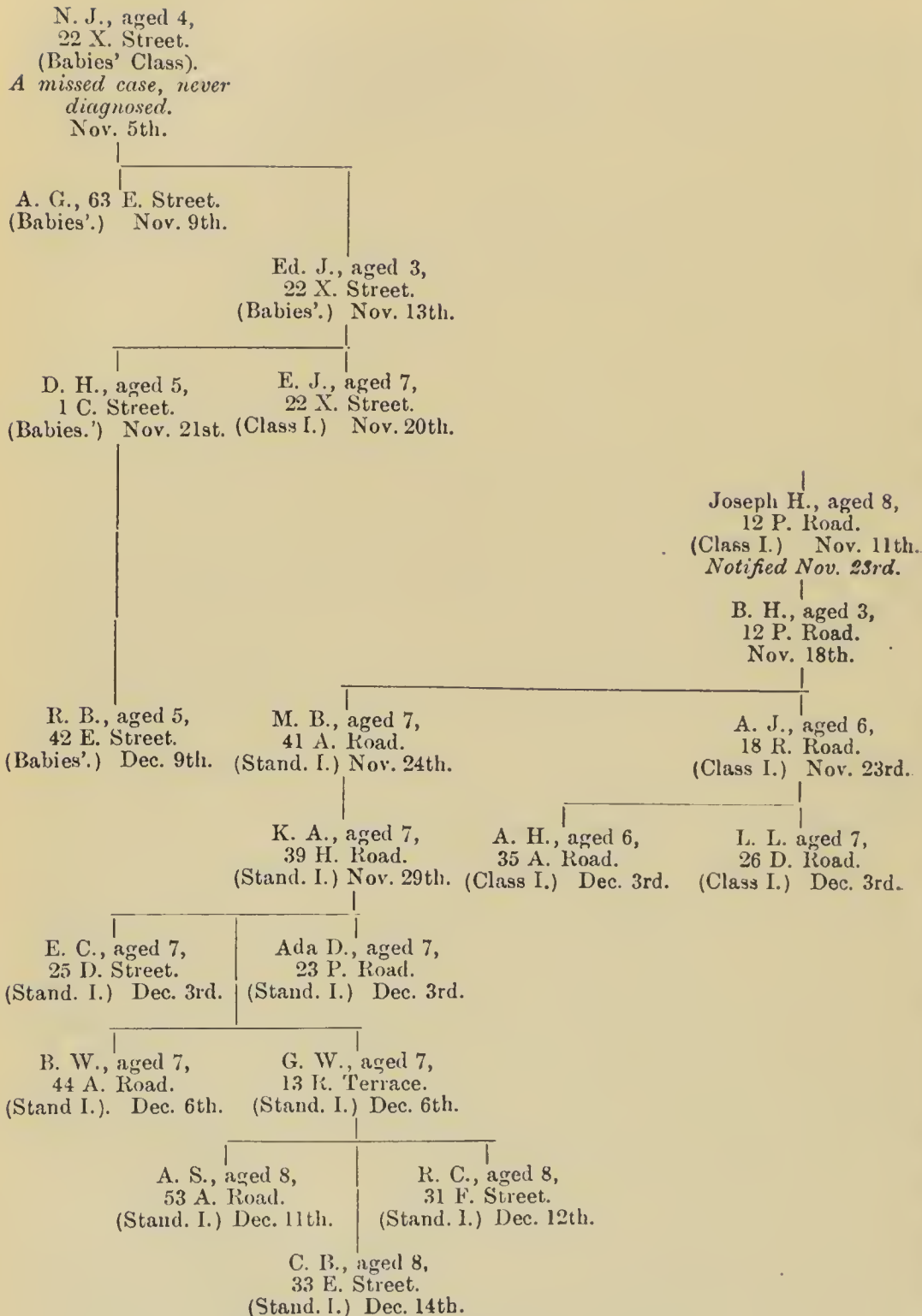
This notice had an excellent effect, as during the next four weeks only two cases occurred at Preston Road School, neither of them from this street.

In the weeks ending October 20th and 27th there was complete freedom from cases. Next week one case occurred in the Infants' Department, which apparently infected the first case in the following series. The subsequent course of events is best explained by the diagram. This is not intended to demonstrate the exact course of infection from child to child, though the relationships of dates and classes are most suggestive. There can, in fact, be little doubt that in most instances infection was spread from child to child as suggested in the diagram, owing to the attendance at school of children in the early stage of diphtheria, or while convalescing from a very slight attack.

The first school case in the diagram, it will be noted, was unrecognised. From November 5th, the date of onset of this case, a sister continued to attend the Babies' Class until November 9th and a brother continued to attend Class I until November 6th. The exact connection of these children with the subsequent cases in the Babies' Class is difficult to determine, but there is reason to believe that the one attending Class I conveyed infection (either through his clothes or secretions) to J. H., who started the outbreak in Class I. Class I and Standard I combine for drawing lessons, and the subsequent infection of the latter can be traced on the diagram. The close inter-dependence of one school on another is shown by the following facts :—

A boy named P., aged 8 years, attending Standard I of the above school, had a sore throat on December 13th. He was not seen by a doctor, nor was his mother, who had a sore throat on December 22nd. The sister, B. P., aged 11 years, failed with diphtheria on the 8th January, 1901, and continued to attend Rugby Road school from the 7th to the 11th January.

## PRESTON ROAD INFANTS' SCHOOL.



The dates are the dates of onset in each case



*Outbreak at Rugby Road School.*—This school remained comparatively free for two months after Preston Road School was attacked. In July, 8 primary cases occurred; in September, 7; in October, 11; in November, 6; and in December, 3. The main outbreak in this school was apparently caused by a family, two of whose children had been away from school with “bad colds,” from the 8th to the 21st of October. They returned to school on the 22nd, and continued to attend school until the 30th with their sister, who failed with a slight attack of diphtheria on the 23rd, but continued to attend school until the 30th, her attack being notified on November 3rd.

*Outbreak at Pelham Street Infants' School.*—At this school, a short and most malignant outbreak occurred in October. There had been no cases among the children attending this school during the three weeks ending Saturday, October 6th. From the 6th to the 11th October, Jno. I., of 38\* X Street, who had attended the Infants' department of this school (Stand. I.), was under the care of a doctor for an attack which was described by him as “a feverish cold, together with biliousness and slight catarrh of his lungs and throat,” and by the mother as an “ulcerated sore throat.” This boy was at school on October 2nd, the day on which he failed. The sister, R. I., continued to attend the Babies' Class of this school up to the 10th of October. Next day she was away from school with “a cold,” returning to school on the 15th. The patients in this house were not isolated in any way, and subsequent events pointed to R. I. having conveyed a malignant form of diphtheria into the Infants' School, in the first instance as an intermediary, then as a direct source of infection. The cases occurring in this school were as follows :—

## SEX. AGE.

M., 5.	34	D. Street.	Infants, Class IV.	Onset, Oct. 10th, <i>fatal</i> .
F., 3.	30	U. Street.	„ Babies.	„ „ 17th, <i>fatal</i> .
F., 5.	30	N. Road.	„ Class IV.	„ „ 19th.
M., 4.	14	U. Street.	„ Babies.	„ „ 19th, <i>fatal</i> .

The Babies' Class and Class IV. were closed from October 23rd (as soon as the three last of the above cases were notified) until November 12th. Until the 22nd of October, the cases in X Street, above alluded to, had not come to my knowledge. They were now visited and the above facts elicited. The following additional facts came to light. The doctor attending Jno. I. denied the possibility of his case being infectious. In view of the outbreak at the School, I felt bound, however, to exclude the members of this family from attendance at school until the 5th November, and the following printed notice was posted to the parent :—

---

\* Numbers and initials have been altered in this and other instances.



This notice must be shewn to the School Attendance Officer if he calls.

BOROUGH OF BRIGHTON.

October 22nd, 1900.

To the Occupier of

You are hereby instructed to keep ALL CHILDREN in your house away from Day School and Sunday School, and not to allow them to come into contact with other children until November 5th. [The infectious patient must be kept strictly isolated in a separate room from the rest of the family for the same period.]\*

Medical Officer of Health.

This term of exclusion, in view of the events to be hereafter enumerated, was subsequently extended to Dec. 10th.

The School Attendance Officer called at this house, and, seeing the above notice, took it to the doctor. On learning his opinion that the case was not infectious, the officer revisited 38 X Street, and is stated to have informed the parents that they "could do as they chose."

Meanwhile the course of events was making it abundantly clear that the family of I. were a centre of infection. Two doors off, a boy, E L., who had played with the patient, Jno. I., was taken ill, on the 22nd October, with a "bad cold." He became gradually worse, and on the 30th, at midnight, the same doctor as attended Jno. I. was called in, and ordered the patient to be immediately removed to the Sanatorium. *This patient died.* A brother, H. L., who had also been playing with Jno. I., was now found to have commenced with a sore throat on October 20th, which, on bacteriological examination, proved to be diphtheria.

In view of the missed cases in this street, I sent the following circular letter to each householder in the street :—

*Private.*

MADAM,—A case of severe diphtheria and several suspected sore throats having occurred in your immediate neighbourhood, I have thought it advisable to inform you of this fact, in order that your own children may be kept strictly under watch. Failure to discover the disease in its early stages has frequently been followed by serious illness and sometimes by a fatal result.

Each child's throat should be looked at daily, not waiting for sore throat, which may not be complained of until a very late stage.

The following symptoms are very suspicious :—

1. The occurrence of a bad cold with tiredness and languor.
2. A thick discharge from the nose.
3. Enlarged glands of the neck.
4. White or yellow specks on the inside of the throat, with or without complaint of sore throat.

*If any of the above symptoms occur, a doctor should be called in.*

I am,

Your obedient Servant,

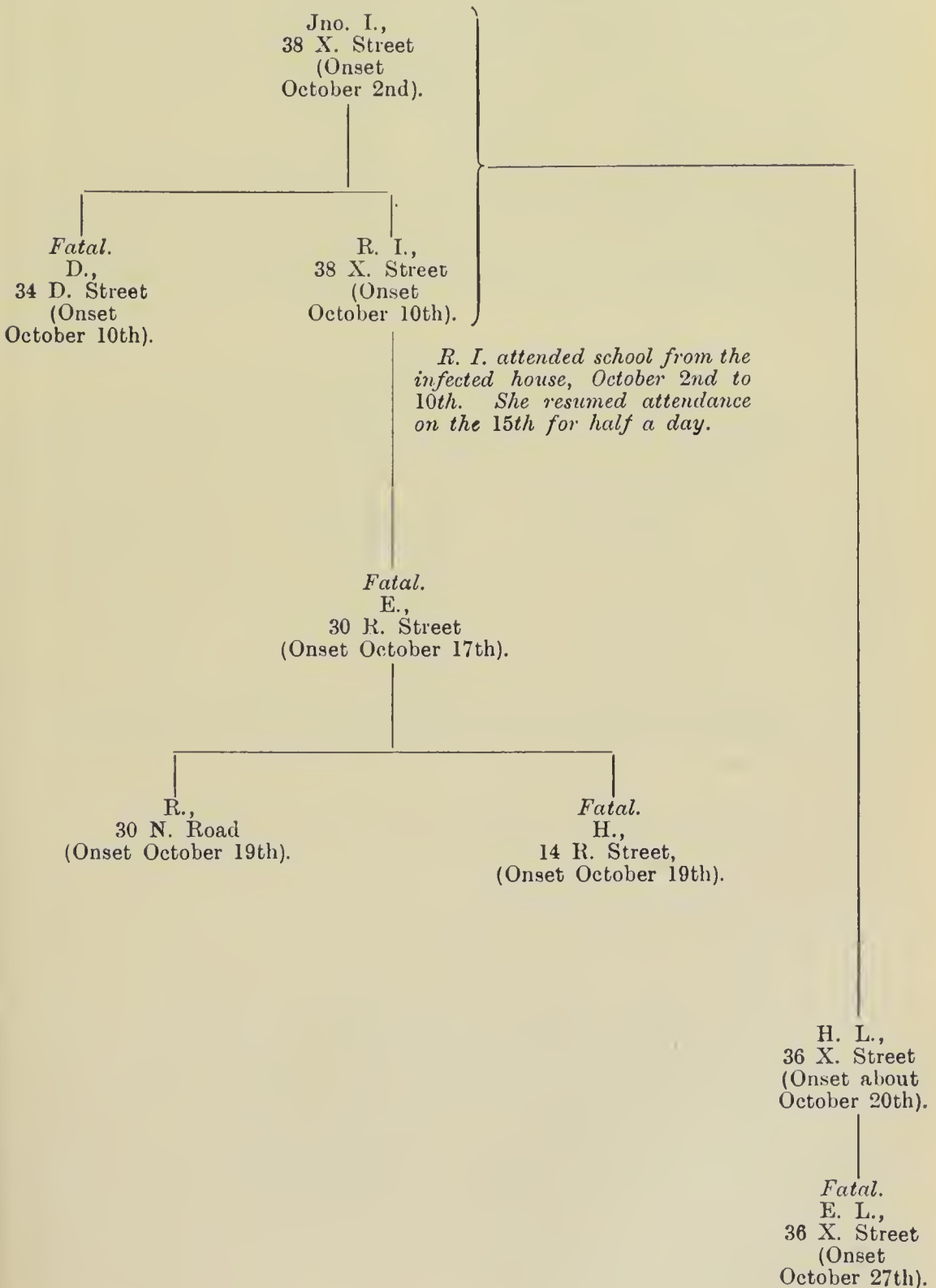
Medical Officer of Health.

---

\* The sentence in brackets was crossed out.

The course of events in connection with this outbreak is graphically shewn by the following diagram :—

PELHAM STREET SCHOOL.



*The special malignancy of the Pelham Street Outbreak.*—During my investigations into the outbreak at this School, it was found that three of the four class-rooms were over-crowded, taking the lower standard (8 square feet per child) permitted by the Code for schools built before April 1899. Thus on December 3rd, in the Babies' room, 70 were present in a room in which an average of 52 was the maximum permissible. In the 4th class room there were 55 instead of the 42 permissible, and in the 1st standard room 62 instead of the 47 permissible in accordance with the above low standard. The overcrowding had, in my opinion, an influence in intensifying the diphtheritic poison, as well as in facilitating its spread. On this point see the remarks quoted on page 46.

*Age Incidence of Diphtheria in relation to School Infection.*—The relationship between school attendance and diphtheria is further indicated by the percentage of total cases occurring at different groups of ages, the cases being classified in accordance with the fact that the first patient was in attendance at school or not within five days of the date of onset.

*Percentage of Total Cases at each Age-Group.*

Ages.	Cases in which there was no School Attendance.	Cases in which there was School Attendance.	
		(a) Including Secondary Cases.	(b) Excluding Secondary Cases.
0—3	23·4	2·7	·4
3—13	34·3	89·2	93·7
Over 13	42·3	8·1	5·9
	100·0	100·0	100·0

## THE MEANS OF SPREAD OF DIPHTHERIA.

A study of Tables IX., X. and XI. shews remarkable discrepancies in the amount of diphtheria in different schools.

The diagram opposite page ■■, shows clearly how certain Board Schools escaped. Although I firmly believe that a certain share of the credit for this relative immunity rests with the teachers, who have greatly helped by sending intimations of dubious sore throats, it is clear that this explanation will not cover the entire ground. It will be noted that a considerable number of Voluntary Schools and no Board Schools remained free from infection in either 1899 or 1900. On this point it will be evident that the possibilities of introduction of infection are greatly multiplied in a large school (see column of average attendances in Tables IX., A and B).

*Influence of Size of Schools.*—An important element in determining the excess of diphtheria in Board Schools is undoubtedly their greater size. The introduction of a specific infection among 500 children is likely to do much more harm than among 250, even when as in Table X. the incidence of the resulting disease is calculated in terms of the attendance: (*a*) because the spread is by personal contact, and (*b*) because the risks associated with a given degree of overcrowding are greater in large than in small rooms. Even with the same amount of floor-space per child, increase in size of classes involves an increased risk of impure air and infection.


*Altitude.*—In explaining these discrepancies, it cannot be agreed that altitude had, as suggested, anything to do with the incidence of the disease. In 1900, Rugby Road suffered next most severely to Preston Road School, and the Preston National School remained up to the end of 1900 comparatively free from infection. After a careful examination into the facts, I find no support for the view that sewer ventilators played any part in the causation of the outbreaks.

*Sanitary Defects.*—Nor can sanitary defects of schools or of dwelling-houses be credited with the origination of the outbreaks. They have, in my opinion, aggravated outbreaks already present. Among these, I must specially mention (*a*) accumulations of decomposable refuse, and (*b*) trough closets at schools. Behind the Preston Road School is an immense railway embankment, which has until recently been used for depositing refuse from the workshops at the railway works. The refuse is chiefly inorganic, but it contains also a quantity of cotton waste, and the sweepings from the shops. Dust from this heap has been an occasional cause of nuisance to the Preston Road Schools and to the occupants of neighbouring houses. A notice has been served on the Railway Company to cover this heap with mould. The heap has a further disadvantage that it diminishes the free perflation of air through the Preston Road School. At the Preston Road School the drainage was defective. It was rectified in September 1900. The trough closets at this and other schools were frequently complained of by parents. Such closets, however carefully tended by the caretaker, involve the sitting of children over dejecta which may be infected, a most objectionable system. In September, 1900, these closets were, on my initiative, replaced in the infants' and girls' departments by separate water closets with separate flushing cisterns. I hope that the similarly objectionable closets in other schools will gradually be removed. This is in process of being done at a few other schools.

Although the dust from the above refuse heap probably did not contain the specific contagium of diphtheria, it was, in my opinion, a factor favouring sore throat, and thus helped in producing the result that Preston Road School suffered more than any other school in the town.

*Incidence according to Districts.*—If the schools be classified according to districts, it will be clear that schools in the north-east and north-western parts of



the town, as classified in the fig. opposite p. , suffered most. The schools were an index of the district prevalence ; but not only so, for although they received the infection by importation from unrecognised and neglected cases in the neighbourhood, they returned it in multiplied cases to the neighbourhood. The experience at Pelham Street, Preston Road and Rugby Road Schools contains many examples of this. Why these districts should have suffered more than others is still open to doubt. It will be noted, however, that they are along the main line of communication north and south. The escape of Kemp Town is thus partially explained ; the escape of the Carlton Hill district is less easily understood. I hope it is more than temporary. There is every reason to hope this, if attendance officers and teachers, as well as parents, can be brought to realise the essential importance of "sore throats." The characteristic feature of diphtheria is, however, its slow spread from district to district, requiring a long time to take root and to be eradicated. Experience in other towns has shewn a greater excess of diphtheria in new houses, and our experience confirms this.

Does the distribution of diphtheria, according to districts, explain the excess of diphtheria in Board over Voluntary Schools shewn in the Table on page 33 and in the diagram ? The similar incidence during 1900 in Pelham Street and St. Bartholomew's Schools appears to indicate this. On the other hand, College and St. Martin's Schools suffered much less than Fairlight Place, rather more than Hanover Terrace and Finsbury Road Board Schools. My own impression is that there are minor differences in administration attaching to individual schools, which are difficult of tabulation, but which have a material influence on the dissemination of diphtheria.

*School Administration.*—The attendance officers are common to board and voluntary schools. Whether they all act with equal stringency, I am unable to say. It would appear, however, that a further cause of difference as to urgency with which absentees are impelled to return to school lies with the teachers of individual schools. From conversation with teachers, I gather that the stress and competition to secure a high average attendance is greater in board than in voluntary schools ; and is carried to a greater extent in some schools than in others. The experience of last year has abundantly proved that the attendance of children from infected houses, or themselves suffering from slight and unrecognised attacks, has been a frequent cause of infection. Among the special cases reported to you have been numerous instances of this. For the failure to recognise slight cases or the unwillingness to admit that they may be infectious, parents must be held to be chiefly responsible. They do not recognise that every sore throat during an epidemic, and even every "bad cold," must be assumed to be infectious. Some teachers, as well as some of the attendance officers, likewise do not realise the importance of the same rule. Hence it has not been an infrequent experience, when the subsequent infection

of other patients has shewn that a neglected sore throat was really diphtheritic, for the mother to excuse herself on the ground that a letter or a message was sent by the teacher, or the attendance officer called, and she "dared not" keep the child longer away from school. This injudicious pressure and failure to recognise the possible infectivity of slight sore throats, has been responsible for much mischief.

*Difficulties of Diagnosis.*—These have been already mentioned.

(a) The parent will not call in a doctor for what appears to be a trifling complaint. A few days later the attack has culminated into a serious or even fatal illness; or if it remains slight, another child may become seriously infected.

(b) When a doctor sees the patient, slight diphtheria is very easily mistaken for ordinary tonsillitis or follicular tonsillitis (ulcerated throat). If the exudate clears off quickly, I have been repeatedly told that it "could not have been diphtheria, because it cleared off so rapidly." The occurrence of secondary cases unfortunately disproves this. Happily, it is becoming more general to send a swab for bacteriological diagnosis in such cases. The chief utility of swabs is in regard to cases so slight as to be clinically unrecognisable. They are not needed for clinically characteristic cases, and invaluable time in the interest of the patient may be and has been lost in less characteristic cases, if antitoxin is not administered immediately there is reasonable ground to suspect the existence of diphtheria.

(c) A negative certificate, shewing that the diphtheria-bacillus was not detected, does not prove that the case was necessarily not diphtheria. In one instance, infection was spread through trusting to such a certificate without attaching due weight to the following printed warning which is attached to every certificate sent out by me.

NOTA BENE.—1.—When a Culture for examination is made during active local treatment, an interval of several hours should intervene between such treatment and obtaining the Throat-swab, otherwise the growth of any organisms present may be inhibited.

2.—It is desirable that a further cultural examination should be made before the patient is pronounced to be free from infection.

3.—In all instances in which the Diphtheria Bacillus is not found, its absence does not necessarily imply that the case is with certainty not Diphtheria. Occasionally, material is sent from cases of true Diphtheria, which does not contain the Diphtheria Bacillus, or the Culture may fail from delays in transmission, or from error in experiment. The result can be confirmed by a second examination. *In all doubtful cases the usual precautions of isolation and disinfection should be carried out* in accordance with the provisions of the Public Health Acts. This certificate is issued solely as a statement of the result of examination of a particular Culture, and not to over-ride a diagnosis made from clinical observation.

Positive certificates can be trusted. Negative certificates merely shew that the diphtheria-bacillus was not found in the swab specimen submitted to examination. If there is suspicion on clinical grounds, this suspicion should be acted on or a further swab specimen taken.

The *measures taken* to prevent the spread of infection have been briefly as follows :—

(a) *Methods of exclusion from school*.—These have, according to special circumstances, comprised (1) the exclusion of infected children, and of all children from the same houses according to well-known rules. (2) The exclusion of suspected children and all children from the same household. (3) The exclusion of all the children from a particular street.

(b) *Methods of school closure*.—These have comprised during the year closure of (1) a particular class-room, (2) two or more class-rooms, and (3) an entire department. (For details see pp. 30 and 37).

(c) *Measures of cleansing and disinfection*. Cleansing and scrubbing of schools and their contents, spraying with formalin, disinfection of books by dry heat, confiscation or cleaning of pencils, sponges, &c.

(d) *Medical inspection* of suspected children at their homes has been carried out by myself and by Drs. Hewitt, Nash and De Wytt, who have successively helped me, to the full extent of practicability. Many unrecognized cases have thus been discovered. The work has required care and discretion, for such visits are chiefly necessary for slight cases, in which the patient is but slightly ill, and the mother will often not recognise the necessity for an examination.

For several weeks during the outbreaks at Preston Road and Rugby Road Schools, Dr. Eves, the Medical Officer to the School Board, attended daily at the schools, and undertook the examination of any children regarded by the teacher as in any degree suspicious.

(e) Bacteriological work has been carried out systematically during the year, an immense amount of work (altogether 563 town swabs have been examined) having been done. These swabs have undoubtedly been a valuable aid to diagnosis. The *impossibility of relying on single negative results* should however, be borne in mind.

*The Causes of Imperfect Success* of our preventive measures have been the following :—

(a) The lack of early information from parents and, to a less extent, from doctors, and the resulting delay in taking preventive measures.

(b) The frequent failure to recognise the disease.

(c) The lack of complete and continuous co-operation between the officers of the School Board and myself.



(d) The inability to control other means of spread than school attendance. On this last point it is necessary to add that domestic infection, even when it spreads to other families in the same street, is a much less serious matter than school infection, by which centres of infection are rapidly established throughout whole neighbourhoods. Sunday schools have been closely watched, and attendance from infected families prevented. The Sunday school, as well as the day school attended by every patient is tabulated, so that an early intimation is obtained of infection in connection with Sunday or day schools. There has been no special run on any Sunday school during 1900. The same remark applies to milk supplies.

*Summary.*—Although I have frankly given the leading facts of last year's experience, in order that all concerned may profit by it, more completely co-operate and consequently be more completely successful than in the past, and although I have alluded to imperfect success, I beg again to draw attention to the comparative lightness of the epidemic, which at the time of writing has become extinct, as compared with that of other towns. I venture to express the opinion that, had it not been for the arduous and intelligent work carried out by every member of my staff, and particularly by Inspector Norrish, I should not be able to place so comparatively favourable a record before you.

There is one hiatus in our arrangement for the prevention of infection by school attendance, which cannot be overcome under present conditions. Infection has been spread very largely by means of children who have returned to school within a few days of the onset of slight and unrecognised attacks of diphtheria. It would be easy to cite numerous instances of this from our notes of the cases during the last two years. The too early resumption of school attendance has sometimes occurred as the result of fear on the part of parents of the consequences of keeping children at home. With the endeavour to prevent idle and indifferent parents from keeping their children at home, I am in hearty sympathy; such cases should not, however, be mixed up with those in which there has been definite illness or malaise. In the latter, as I have already indicated, injudicious pressure has occasionally been exercised. What is wanted is a much larger use by the School Board of medical aid in determining whether absentees (especially absentees during an epidemic) may safely resume attendance at School. A mere inspection of the throat will not insure safety in this respect, but if combined with the aid of bacteriology\* would greatly increase the safety of school attendance for healthy children. The bacteriological examinations your Committee has always authorised me to undertake, free of cost. Such a system as the above would, I believe, more than pay for the expenditure involved, in increased average attendance. It would only, however,

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\*Positive results in bacteriology being trusted; as to negative results, see page 43.



be successful if action were taken on the general principle—a principle which I have, notwithstanding protests and misunderstandings, strictly adhered to—that when an exact decision cannot be reached as to whether a given child is infectious or not, the action to be taken shall be in the direction of exclusion of that child ; in short, exclude every child about whom there is suspicion. It is only by adhering strictly to this rule that the occasional disorganisation of school work by epidemic diseases can be obviated.

*Quotations.*—The following remarks by the late Sir R. Thorne, K.C.B., Medical Officer to H.M. Local Government Board, bear so strongly on various points raised in the preceding report on diphtheria, that no excuse is necessary for quoting them :—

“I take it that there is practical unanimity of opinion among skilled observers as to the association with diphtheria of certain throat affections which, if met with apart from cases of the recognised disease, would certainly not be regarded as having any definite relation with it.” (p. 54, *Natural History and Prevention of Diphtheria*, 1891).

“Information was obtained which went to shew that where faulty circumstances of the school-house, and notably circumstances of overcrowding and inadequate ventilation also came into play, the mischievous influence associated with school attendance operated with exceptional force, both in respect of numbers attacked and of the type of the malady.” (p. 114 *op. cit.*)

“There are ample grounds for believing that the aggregation of children in elementary schools constitutes one of the conditions under which a form of disease of particular potency for spread and for death, may be, so to speak, manufactured.” (p. 137, *op. cit.*)

“One of the most prominent dangers connected with the diffusion of this disease lies largely in the presence within schoolrooms of comparatively trivial and even unrecognised attacks, which, under conditions of school aggregation, tend more than under any other known circumstance, to maintain the disease and to form connecting links between one and another outbreak of well-marked diphtheria.” (p. 205, *op. cit.*)

“School influence . . . tends to foster, diffuse and enhance the potency of diphtheria, and this, in part at least, by the aggregation of children suffering from that “sore throat,” which commonly is prevalent antecedent to and concurrently with definite diphtheria.” (p. 219., *op. cit.*)

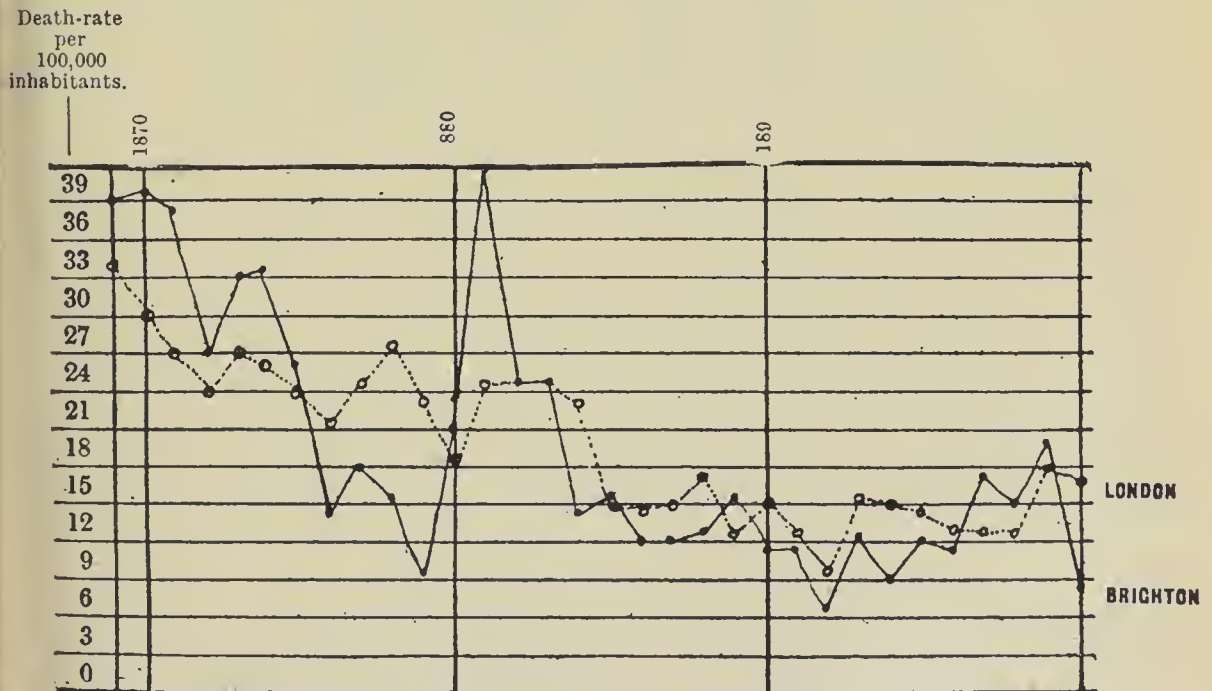
## ENTERIC OR TYPHOID FEVER.

The incidence of enteric fever, since notification came into operation, is shewn in the following table :—

					Number of cases per 100,000 of population.	Number of deaths per 100,000 of population.	Case-mortality Number of deaths per 100 cases notified.
1892	...	...	...	...	54	7	12·7
1893	...	...	...	...	65	13	19·5
1894	...	...	...	...	69	9	13·0
1895	...	...	...	...	72	12	16·6
1896	...	...	...	...	101	11	11·2
1897	...	...	...	...	94	17	18·1
1898	...	...	...	...	105	15	14·3
1899	...	...	...	...	148	20	13·7
1900	..	...	...	...	67	9	14·4

During last year the death-rate from Typhoid Fever was lower in Brighton than in any preceding year excepting 1892, being only '09 per 1,000. This is particularly satisfactory when a comparison is made with the figures for other great towns. Thus, the average death-rate from this cause for the 33 towns was '20, for London '17; the highest among these towns being Portsmouth '47, Wolverhampton '45, Preston '39, Sunderland '37, Birmingham '34, Nottingham '32 per 1,000.

The comparison with London is particularly interesting, as interchange of population between London and Brighton is constantly going on. So far as



*Diagram showing Death-rate from Enteric (Typhoid Fever)  
from 1869 to 1899.*

Typhoid Fever is concerned, the intimate relationship of the two populations, and the similarity of the sources of infection causing this disease, are shewn by the above figure. During last year Brighton has shewn a great relative improvement, which I have no hesitation in ascribing chiefly to the continuous publicity given to the following poster, which is exhibited at various points on the beach :—

COUNTY BOROUGH OF BRIGHTON.

The public are warned against eating oysters, mussels and cockles derived from sewage-polluted sources.

Serious illness is frequently caused by neglect of this precaution.

(Signed) ARTHUR NEWSHOLME,  
*Medical Officer of Health.*

The following tabular statement gives the history of cases of Typhoid Fever in the Borough during 1900, with special reference to the eating of shell-fish.

TABLE XII.

YEAR.	No. of cases subsequently found not to be Enteric Fever, or of which the nature was doubtful.	No. of cases of Enteric Fever, the infection of which was imported from other districts.	No. of cases apparently originating in the town in which :				Infection probably acquired in connection with the storing or handling of shell fish.	Total cases of local origin.
			(a) it was stated that no oysters or other shell fish had been eaten.	(b) it was doubtful as to whether shell fish had been eaten.	(c) origin was directly ascribable to oysters.	(d) origin was directly ascribable to other shell fish.		
1893 (from Mid-summer) ...	1	16	19	6	6*	—	—	31
1894 ... ..	15	15	33	1	16	5	—	55
1895 ... ..	12	19	37	—	7†	12	—	56
1896 ... ..	7+3	18	61	2	22‡	8	1	94
1897 ... ..	7+3	15	47	11	11†	16	3	83
1898 .. ...	16	15	54	3	28§	13	—	93
1899 ... ..	15	30	56	20	44	8	—	128
1900 ... ..	19	15	28	4	12¶	4	1	49

\* No secondary cases.

† Including one secondary case.

‡ Including two secondary cases.

§ Including five secondary cases.

|| Including seven secondary cases.

¶ Including one secondary case.



It will be noted that of the total 83 notified cases, 19 subsequently proved not to be Typhoid Fever, or the diagnosis was very uncertain, in 15 the infection was directly imported from outside districts, the patients arriving in Brighton while incubating the disease, while 49 cases were of local origin. Of these, 11 were definitely ascribable to the eating of oysters, with one secondary case by personal infection, and four were definitely ascribable to the eating of mussels, while in one case the handling of mussels appeared to have been the only clue to the origin of the case. In four others, a more dubious history as regards shell-fish was obtained. Thus of the total cases of local origin, about 32·6 per cent. were probably caused by sewage-polluted oysters or mussels, as compared with 36·6 per cent. in the six preceding years. Compared with 1899 there was a certainly reduction of cases of typhoid fever due to other causes from 56 to 28 (*i.e.*, 50·0 per cent.), and of cases of typhoid fever due to shell-fish from 52 to 16 (69·3 per cent.).

The following cases illustrate the history which is commonly obtained in the cases which I have ascribed to the eating of shell-fish. These histories are not given as proving to demonstration the causative relationship between shell-fish and Typhoid Fever. Such demonstration is rarely practicable, and one is obliged to be satisfied with circumstantial evidence of varying degrees of probability.

*Oyster Cases.*—1. Mrs. W., aged 28, her sister and one other person, on Whit-Monday, June 4th, ate 21 oysters between them, which were purchased from a stall on the beach. These two others remained well, but Mrs. W., on June 21st, failed with typhoid fever, which proved fatal. She lived at No. 46 N. Street, and all the sanitary arrangements at the house were satisfactory. Three other adults and two children lived in this house, who all remained well.

2. M. C., aged 29, a solicitor's clerk, of No. 6 B. Road, failed with typhoid fever on October 29th. He frequently ate oysters, and preferred Caen Bays, which are sold in Brighton after having been laid down in a certain sewage polluted estuary. He lives with a married couple and one child, and shortly before the onset of his illness brought home a supply of native oysters for them (known to be derived from an uncontaminated source) and some larger Caen Bay oysters for himself. The other occupants of the house have remained well.

3. M. R., who was a parlourmaid at Lewes, left her situation on November 10th, coming to No. 92 E. Street, Brighton, on that date, where she remained until November 30th, then going into service at a house in Hove. On December 4th she failed with typhoid fever. The house in E. Street in which she lived is in a good sanitary condition, and the five other persons living in it have remained well. On November 22nd she and a young man living in this house brought home and ate a number of oysters. These had been bought in a



shop which derived its oysters from a source on which I have frequently reported to you. The young man has remained well.

4. Mrs. J., aged 28, of No. 19 R. Street, wife of an artisan, on Saturday evening, November 10th, was with her husband, who bought six oysters for her from a barrow in the street. This barrow is owned by the son of the man who sold the oysters in the last case. The husband did not have any oysters. On November 28th, Mrs. J. failed with typhoid fever. No other persons lived in the same house, which is in a good sanitary condition.

5. A. H., employed as a waitress, failed with typhoid fever on November 27th. She frequently had oysters at a shop, the source of whose supply is as above. The last time she had them was three weeks before the onset of her illness. She states that she had none subsequent to this, because she had heard of cases of typhoid fever being caused by them. A large family lived in the house where she lodged, who all remained perfectly well.

*Mussel Cases.*—1. Mrs. H., aged 29, of No. 52 L. Street, failed with typhoid fever on September 28th. On September 13th, she, her mother, sister and husband, ate a number of mussels which were uncooked. All remained well except this patient. The mussels were derived from Shoreham. The house is in a good sanitary condition.

2. F. D., aged 11 years, of No. 32 J. Street, failed with typhoid fever on November 8th. On November 1st, her father brought home a quart of mussels, bought at a shop which derives its supply from Shoreham Harbour. The patient and an adult female living in the same house each ate a few raw. The father and mother of the patient ate mussels after being cooked, and remained well. The female adult alluded to above vomited after eating the mussels, but subsequently remained well.

*Case possibly due to handling mussels.*—3. B. P., aged 24, of No. 10 K. Street, failed with typhoid fever on July 29th. Six weeks earlier a notice had been served as to the paving of the back yard of this house, and a month previous to the onset the drain in the back yard is said to have been choked, and was cleansed next day. The underground drain was subsequently tested and found to be defective. Two other adults lived in this house, who remained quite well. The favourite occupation of the patient was to fish from the West Pier twice a week, the bait used being mussels derived from the source previously mentioned. While on the Pier the patient had no opportunity of washing his hands, and ate his lunch while fishing. The history in this case is evidently dubious, but the balance of evidence, in my opinion, is in favour of the view that infection was swallowed with some of the mud off the mussel shells.

*Personal Infection.*—Of the total 49 cases of local origin, 10 acquired the infection from preceding cases, one of these being a trained nurse in attendance on a typhoid patient. Two other patients, who were nurses at the County Hospital, probably derived their infection also from personal infection. Of the remaining 10, one was an orderly who nursed a case of typhoid fever at the Barracks. Three children in one house were probably infected from their mother, who was nursed at home for an unrecognised illness associated with fever.

*Cases caused by other conditions.*—The source of 16 cases remains to be traced. In one of these there was a definite history of the patient having drunk freely from a surface pond in the country while gathering blackberries, and the attack probably originated in this way. Three other cases were connected with a choked drain in a manner on which I am unable to throw complete light, although the facts, as follows, are very suggestive:—

A. J., a girl aged 13, failed with typhoid fever on August 13th. On August 20th, Thomas B., aged 24, employed in a shop next door, and on August 24th, Miss A., aged 26, who lives at this shop, also failed with typhoid fever. On August 9th, the drain of this shop was choked in the back yard. It was cleared by opening it in the back yard and at the syphon in the front area, the drain in the former position being broken and patched temporarily with pieces of pipe and cement, leaving it in a leaky state. The chokeage is said to have been caused by a piece of rag. The drain was subsequently tested and found very defective. The drain next door was new and in a thoroughly good condition. In this house lived a large family of children, all of whom have remained well. A. J. is stated to have visited occasionally the house where the drain had been choked. She failed two days after the drain was cleared, while the other two patients failed respectively nine and thirteen days after this event. It seems probable that some specific infection from the drain had been brought to the surface by the workmen, and been inhaled either as dust or after contaminating food.

Of the remaining 12 cases under this heading, one occurred in the Barracks and may have been imported. There still remain 11 untraced cases. Of these, several were children, the sex and age being as follows:—Girls aged 13, 13, 12 and 8, and boys aged 11 and 10 respectively. The sanitary condition of the six houses occupied by each of these patients was good, and there must have been in existence some source of infection which could not be traced, although every effort was made. In another case, that of an errand boy aged 17, the drain was good, and no infection could be traced. In another case, that of a girl aged 14, a defective drain without an intercepting trap was found, but several other children in the same house had remained well.

It will be seen that in several of the above instances no definite infection can be traced. In every case, excepting one alluded to above, milk and water were excluded as a possible source of infection, there never having been more than one case in connection with a given milk supply. Typhoid fever is undoubtedly spread occasionally by means which cannot at present be exactly traced, but that food may be infected in other ways than is ordinarily supposed is, I think, quite clear. Last year, for instance, one case was clearly traced to sweetmeats bought at a shop where the vendor was helping in the shop in the intervals of nursing her child, who was suffering from a bad attack of diarrhœa, which the Widal test subsequently proved to be typhoid fever. Some such source as this, if it could be traced, would throw light on the above untraced cases of typhoid fever among school children.

*Possibilities of extinction of Typhoid Fever.*—The preceding remarks will have shewn that defective house conditions are becoming a rapidly decreasing factor in the causation of our local typhoid fever. The sanitation of Brighton has so immensely improved that surprise might reasonably be expressed were this otherwise. The water supply is pure and constant; all new house drains are water-tight, and old drains have been largely replaced by water-tight drains; and surface accumulations of filth are exceptional. There remain chiefly the casual contaminations of food, especially of uncooked or imperfectly cooked foods, the prevention of which is a more difficult problem.

## DIARRHŒA.

The mortality from diarrhœa (Table VI., p. 14) was exceptionally low during 1900, not half of that in the preceding year. Much of this is ascribable to the heavy rainfall which early in August scoured the streets and cleansed the town. The experiment carried out by the Works Committee, in a district of the town suggested by me, must be credited with some share in the result. From July 3rd to September 25th, in a district lying north and south between Richmond Street and St. James's Street, and west and east between the rear of Grand Parade and Montagu Place, a semi-weekly instead of the customary weekly removal of house refuse was undertaken. The cost of this more frequent removal, I am informed, was £88 17s. 8d. The cost for the whole town during the same period would, on the same basis, have been six times this sum; but possibly it might have been carried out more economically if organised on a larger scale.

Attention has been drawn, in a circular letter sent to every medical practitioner, to the importance of stating, in relation to every death from "enteritis," whether this is "zymotic" or "epidemic," so as to justify its classification with "diarrhœa."



The relationship between rainfall and certain infectious diseases is **very** close, and I therefore append the following information. The distribution of the year's rainfall, which is scarcely less important than its amount, can be seen in Table XIII.

Official observations have been made on behalf of the Brighton Corporation from 1877 onwards. The average annual rainfall for the 24 years, 1877-1900 was 29·14 inches. Since 1887, with the exception of two years, there has been, as shewn in the following table, a continuous deficiency below this average. In the 11 preceding years, the rainfall in three years only was deficient from the average (*viz.*, 0·27 in. in 1883, 2·83 in 1884, and 0·29 in. in 1888).

*Deviation from Average Rainfall (29·14 in.) of 24 years 1877-1900.*

<i>Year.</i>		<i>Deficiency.</i>		<i>Excess.</i>		<i>Accumulated Deficiency.</i>
1887	...	7·07	...	—	...	7·07
1888	...	1·03	...	—	...	8·10
1889	...	1·74	...	—	...	9·84
1890	...	5·58	...	—	...	15·42
1891	...	—	...	5·19	...	10·23
1892	...	2·72	...	—	...	12·95
1893	...	5·06	...	—	...	18·01
1894	...	—	...	2·76	...	15·25
1895	...	4·00	...	—	...	19·25
1896	...	1·35	...	—	...	20·60
1897	...	0·07	.	—	...	20·67
1898	...	8·78	...	—	...	29·45
1899	...	5·72	...	—	...	35·17
1900	...	1·31	...	—	...	36·48



TABLE XIII.

1900. Week ending	Death-rate per 1,000 per annum.	Number of Deaths during week from								Temperature of air during week.		Wind.								Rainfall.		No. of hours of bright sunshine.						
		Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Influenza.	Bronchitis.	Pneumonia, including Broncho-Pneumonia.	Phthisis.	Mean.		No. of days of									No. of days on which rain fell.	Amount collected in inches.				
												Highest.	Lowest.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.				Calm.			
Jan. 6...	44.9	—	1	—	—	1	—	36	22	11	5	51.0	30.0	43.4	43.0	42.6	—	1	—	—	2	—	—	1	1	6	1.32	12.42
" 13...	28.6	—	—	—	—	—	1	1	17	8	4	47.8	31.0	38.6	43.0	42.0	42.0	5	—	—	2	—	—	1	1	2	0.11	17.75
" 20...	19.7	—	1	—	—	—	—	3	10	4	3	50.2	31.8	42.0	42.0	41.0	41.0	—	—	—	1	—	—	1	1	6	1.14	12.50
" 27...	17.2	—	—	—	—	1	—	7	5	3	3	51.2	33.4	44.5	42.0	41.0	41.0	—	—	1	—	—	—	1	1	5	0.47	9.42
Feb. 3...	17.2	—	—	—	—	—	—	3	3	3	4	41.6	31.4	36.0	42.0	41.0	39.4	2	3	—	—	—	—	—	—	5	1.53	5.75
" 10...	24.4	—	—	—	—	—	—	3	9	3	4	42.0	20.6	32.9	41.0	39.4	41.0	4	2	1	—	—	—	—	—	5	0.56	22.49
" 17...	14.3	—	—	—	—	—	—	2	1	2	4	48.6	28.2	38.9	39.2	37.2	39.2	2	—	—	1	1	4	1	2	5	2.23	22.50
" 24...	23.1	—	—	—	—	—	—	3	3	7	4	53.0	33.2	44.6	40.0	37.6	40.0	—	—	—	—	—	—	—	—	7	1.05	24.25
Mar. 3...	17.2	—	2	—	1	—	—	—	4	2	4	56.0	34.0	44.7	42.4	40.4	40.4	—	3	1	—	—	—	—	2	4	0.51	8.50
" 10...	14.3	—	—	—	—	—	—	—	8	1	5	57.6	34.0	41.6	42.6	41.6	41.6	1	3	3	—	—	—	—	—	—	—	20.91
" 17...	16.4	—	—	—	—	—	—	—	2	1	3	52.2	24.0	41.1	42.2	41.8	42.0	3	3	1	—	—	—	—	1	—	—	21.25
" 24...	17.6	—	—	—	—	—	—	1	3	1	5	51.4	30.0	39.0	42.0	41.8	41.8	4	2	—	—	—	—	—	—	3	0.70	20.58
" 31...	14.3	—	—	—	—	—	—	1	5	—	6	52.4	29.6	42.7	42.6	41.8	41.8	—	1	2	—	—	—	—	—	5	0.17	35.26
April 7...	21.0	—	1	—	3	—	—	2	10	4	7	58.8	34.2	47.5	44.0	42.6	42.6	1	2	1	—	—	—	—	2	4	0.67	34.33
" 14...	26.0	—	1	—	—	—	—	1	5	4	—	68.0	41.2	51.9	46.0	44.8	44.8	1	4	—	—	—	—	—	2	2	0.22	39.42
" 21...	15.5	—	—	—	1	—	—	—	4	—	4	63.6	33.6	48.7	48.0	46.6	46.6	1	—	1	—	—	—	—	1	2	0.05	54.42
" 28...	16.8	—	—	—	1	—	—	—	5	3	3	63.2	36.0	51.1	49.0	48.0	48.0	1	4	1	—	—	—	—	—	—	—	47.41
May 5...	14.3	—	1	—	1	—	—	—	9	4	4	65.0	41.8	58.6	50.8	49.4	49.4	1	—	—	—	—	—	—	1	—	—	46.42
" 12...	18.5	—	—	—	1	—	—	—	1	5	4	60.8	38.8	48.9	50.8	50.6	50.6	2	5	—	—	—	—	—	1	1	0.06	30.92
" 19...	13.9	—	—	—	—	—	—	—	3	1	2	63.6	41.0	53.3	52.0	50.8	50.8	1	—	—	—	—	—	—	1	1	0.01	60.59
" 26...	16.4	—	—	—	—	—	—	—	2	2	3	71.2	45.2	56.1	53.6	52.4	52.4	—	—	—	—	—	—	—	1	3	0.34	48.34
June 2...	12.6	—	—	—	—	—	—	—	—	3	2	77.0	49.0	60.4	56.0	53.6	53.6	3	3	1	—	—	—	—	2	2	0.12	44.58
" 9...	18.5	—	—	—	—	—	—	—	2	—	3	79.0	54.0	62.1	58.0	56.4	56.4	—	—	—	—	—	—	—	1	1	0.01	72.92
" 16...	13.4	—	—	—	—	—	—	—	4	4	3	68.0	49.2	59.2	59.0	58.0	58.0	—	—	—	—	—	—	—	—	3	0.65	60.67
" 23...	14.7	—	1	—	—	—	—	—	1	1	5	67.8	49.8	58.7	59.0	58.0	58.0	—	—	—	—	—	—	—	1	5	1.46	51.34
" 30...	10.1	—	—	—	—	—	—	—	1	1	6	67.8	49.8	58.7	59.0	58.2	58.2	—	—	—	—	—	—	—	—	4	0.19	44.17

1900. Week ending	Number of Deaths during week from										Temperature of air during week.		Temperature of soil during week at a depth of four feet.		Wind.								Rainfall.		No. of hours of bright sunshine.			
	Measles.	Scarlet Fever	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Influenza.	Bronchitis.	Pneumonia, including Broncho-Pneumonia.	Phthisis.	Mean.		Highest.	Lowest.	No. of days of								No. of days on which rain fell.	Amount collected in inches.				
											Highest.	Lowest.			N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Calm.				
July 7...	15.1	1	3	1	—	—	—	3	—	4	69.4	51.4	59.7	59.0	58.8	—	—	—	—	—	—	—	—	—	—	4	0.67	52.09
" 14...	11.3	—	—	—	—	—	—	1	—	3	81.2	51.2	64.0	60.8	59.2	—	—	—	—	—	—	—	—	—	—	—	—	77.25
" 21...	18.1	—	—	—	—	—	—	3	—	3	81.2	55.2	68.4	63.2	61.2	—	—	—	—	—	—	—	—	—	—	—	—	81.92
" 28...	16.8	—	—	—	—	—	—	—	—	3	80.0	60.4	69.0	64.8	63.2	—	—	—	—	—	—	—	—	—	—	—	—	66.49
Aug. 4...	19.3	—	—	—	—	—	—	—	—	1	75.0	54.6	63.9	65.0	64.2	—	—	—	—	—	—	—	—	—	—	—	—	55.16
" 11...	25.6	—	—	—	—	—	—	—	—	—	69.4	50.6	59.5	64.0	62.2	—	—	—	—	—	—	—	—	—	—	—	—	30.25
" 18...	18.9	—	—	—	—	—	—	—	—	2	81.4	50.4	65.7	62.4	61.8	—	—	—	—	—	—	—	—	—	—	—	—	84.58
" 25...	18.1	—	—	—	—	—	—	—	—	3	72.6	51.0	63.1	63.8	62.6	—	—	—	—	—	—	—	—	—	—	—	—	58.67
Sept. 1...	23.1	—	—	—	—	—	—	—	—	3	73.0	50.6	61.4	63.6	62.8	—	—	—	—	—	—	—	—	—	—	—	—	39.00
" 8...	22.7	—	—	—	—	—	—	—	—	1	73.4	44.2	57.8	62.6	61.6	—	—	—	—	—	—	—	—	—	—	—	—	63.17
" 15...	13.9	—	—	—	—	—	—	—	—	2	74.6	50.0	61.5	61.6	61.2	—	—	—	—	—	—	—	—	—	—	—	—	56.84
" 22...	23.5	—	—	—	—	—	—	—	—	5	70.2	45.4	60.4	61.8	61.2	—	—	—	—	—	—	—	—	—	—	—	—	44.32
" 29...	19.3	—	—	—	—	—	—	—	—	9	67.2	47.0	59.0	61.6	61.0	—	—	—	—	—	—	—	—	—	—	—	—	44.32
Oct. 6...	14.3	—	—	—	—	—	—	—	—	—	64.6	42.0	57.0	61.0	59.8	—	—	—	—	—	—	—	—	—	—	—	—	31.59
" 13...	18.9	—	—	—	—	—	—	—	—	2	66.2	42.6	56.0	59.8	59.4	—	—	—	—	—	—	—	—	—	—	—	—	28.75
" 20...	16.8	—	—	—	—	—	—	—	—	4	62.4	39.0	51.1	59.2	57.0	—	—	—	—	—	—	—	—	—	—	—	—	29.41
" 27...	14.3	—	—	—	—	—	—	—	—	4	60.6	33.4	47.8	56.8	55.0	—	—	—	—	—	—	—	—	—	—	—	—	16.58
Nov. 3...	13.9	—	—	—	—	—	—	—	—	5	60.4	39.8	54.0	54.6	54.0	—	—	—	—	—	—	—	—	—	—	—	—	18.83
" 10...	12.2	—	—	—	—	—	—	—	—	1	57.4	40.6	51.5	54.8	54.0	—	—	—	—	—	—	—	—	—	—	—	—	13.17
" 17...	19.3	—	—	—	—	—	—	—	—	5	56.8	34.0	47.7	53.8	52.0	—	—	—	—	—	—	—	—	—	—	—	—	16.33
" 24...	16.8	—	—	—	—	—	—	—	—	6	52.2	32.0	44.0	52.0	49.8	—	—	—	—	—	—	—	—	—	—	—	—	6.00
Dec. 1...	17.2	—	—	—	—	—	—	—	—	4	53.8	42.0	47.3	49.8	49.6	—	—	—	—	—	—	—	—	—	—	—	—	13.42
" 8...	15.5	—	—	—	—	—	—	—	—	2	54.6	39.0	48.6	49.0	48.8	—	—	—	—	—	—	—	—	—	—	—	—	3.84
" 15...	14.3	—	—	—	—	—	—	—	—	3	51.6	40.8	49.4	49.0	49.0	—	—	—	—	—	—	—	—	—	—	—	—	4.42
" 22...	15.1	—	—	—	—	—	—	—	—	5	53.0	34.0	46.3	49.0	48.6	—	—	—	—	—	—	—	—	—	—	—	—	18.17
" 29...	13.0	—	—	—	—	—	—	—	—	4	52.6	35.0	46.6	48.0	47.4	—	—	—	—	—	—	—	—	—	—	—	—	11.08
		53	12	69	35	11	97	68	190	137	81.4	20.6	51.7	65.0	37.2	39	52	16	10	33	77	50	41	46	179	27.36	1834.76	

## TUBERCULAR DISEASES.

*Mean Annual Death-Rate in Brighton from Phthisis (Consumption) and other Tubercular Diseases per 100,000 Persons in Groups of Years.*

	Phthisis.	Other Tubercular Diseases.
Ten years, 1861-70 ... ..	295	98
Ten years, 1871-80 ... ..	247	78
Three years, 1881-83 ... ..	193	?
Three years, 1884-86 ... ..	169	?
Four years, 1887-90 ... ..	169	?
Four years, 1891-94 ... ..	150	82
Four years, 1895-98 ... ..	149	63
1899 ... ..	146	28
1900 ... ..	139	47

The decline in the death-rate from phthisis has continued, while the death-rate from other tubercular diseases has increased. This is almost certainly only apparent. The "other tubercular diseases" include a number of which, the diagnosis being difficult, there has been incomplete certification in the past. On the contrary, in one respect, certification has occasionally been less complete than in the past, many death certificates now certifying "tuberculosis" as a cause of death, without defining the chief part of the body implicated. On the whole, there is evidence of steady improvement in our death-returns as to tubercular diseases.

*Action taken after Deaths from Phthisis.*—As explained in my last annual report, a circular letter is addressed to the householder of each house in which a death from consumption has occurred, advising the precautionary measures required. This is sent out on Monday, directly after receipt of the death-returns for the week. The work done after deaths from consumption has been as follows :—

Stripping walls of paper and whitewashing ceilings ... ..	91
Spraying rooms with or without stripping walls ... ..	4
Damp cleansing of walls ... ..	38
Bedding destroyed ... ..	1

in addition to the details of domestic scrubbing and washing, which were carried out in every instance ; a visit being made to the house after the burial, and further notices served in exceptional cases in which the necessary work had not already been done.

During 1900 the deaths from consumption numbered 173. In 150 it was found practicable to make inquiries into the history and environment of the deceased. There was clear evidence that in at least 22 out of the 150, or 14·7



per cent., the illness dated from some time precedent to the time of coming to live in Brighton. Of these 22 deaths, 4 occurred within a week and 7 between a week and a month after arriving in Brighton; 4 in from one to three months, 3 in from three to twelve months, and 4 later. This statement is necessarily incomplete, as it does not comprise a considerable number of deaths from consumption in the Workhouse of persons who were not inhabitants of Brighton.

### NOTIFICATION OF PHTHISIS.

Voluntary notification of phthisis by medical practitioners was begun in January, 1899, no payment being then made for such notifications. Between that date and September 11th, when the new arrangement to pay for each case of phthisis notified in private practice, 2s. 6d., and in public practice, 1s., came into operation, 70 cases were notified. From September 11th to December 31st, 1899, 43 cases were notified. During 1900, 105 cases were notified, including 5 notified by myself. The fees payable on the 100 cases were 56 at 1s., and 48 at 2s. 6d., four cases having been notified twice during the year.

Of these notified cases the following follows:—The

patients.

The occasion of the visit to the phthisical patient is taken advantage of to serve any sanitary notices required in view of the condition of the house. Among the chief of these have been stripping and whitewashing of rooms, cleansing and disinfection of bedding, removal of any causes of dampness in the house, insertion of staircase windows, paving of yards, &c.

Altogether, three cases have been visited three times, 50 cases twice each, and 47 cases have been visited once each during last year.

In accordance with the circular letter issued to practitioners, very few notifications of moribund cases or of patients previously notified (which were deprecated) have been received. A year's further working of voluntary notification shows that it can be worked without friction or difficulty, and that a large amount of good has been effected. The occupation of the patient has in no case been interfered with and the patient has always been grateful for advice given. The fact that in a considerable proportion of cases similar advice had previously been given by the practitioner has not been found to constitute any difficulty. The one weak point in our present arrangements is that among the



poor, occasionally when a second visit is made at the end of three months, it is found that the patient has left the house, and another family occupy it, without any intervening disinfection. The solution of this difficulty lies in encouraging multiple notifications by practitioners on change of address, which are difficult to secure, or in discovering some means of inducing patients or their relatives to notify changes of address. I should be glad similarly to receive more notifications than I receive at present of change of lodgings of phthisical visitors.

### TUBERCULOSIS IN RELATION TO MILK SUPPLY.

The necessity for the "Model" Clause now being promoted in Parliament by the Brighton Corporation is shewn (A) by the amount of disease which is known to be caused by the milk from tuberculous cows, and (B) by the fact that the official action now practicable is not efficacious as a means of preventing this disease.

#### A.

That the milk from tuberculous cows causes tuberculosis in children is indicated by the following facts :—

\* *Tabes mesenterica* is the technical term used to indicate tubercular disease of the intestines or the glands in connection with them. The diagnosis of this disease is more difficult than that of other forms of tubercular disease, and it is possible that many deaths are still, and have been in the past, returned under this head which are not really due to tubercular disease of the alimentary canal. After, however, making the fullest allowance for this cause of error, the following remarkable and suggestive facts are to be noted :—

(a) The death-rate from *tabes mesenterica* has remained stationary, while that from other forms of tubercular disease has greatly declined.

(b) The chief incidence of deaths from *tabes mesenterica* is among infants in the first two years of life, these being the years in which uncooked milk forms the chief item of the child's food. The same fact may be expressed in another form. Thus : While only 3·6 per cent. of the deaths from consumption of the lungs occur in children under five years of age, 78·2 per cent. of the deaths from consumption of the bowels occur at these ages. It is impossible to dis-

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\*See par. 3 of Report of 2nd Royal Commission on Tuberculosis.

sever these statistics from the firm belief that while consumption of the lungs is usually due to the direct inhalation of infective dust, consumption of the bowels is frequently caused by the drinking of the milk from tuberculous cows.

3.—Cows brought into Brighton slaughter-houses from farms in neighbouring districts have frequently been found to be suffering from advanced tuberculosis of different organs, and sometimes from tuberculosis of the udder.

On March 4th, 1897, I shewed at a meeting of the Brighton and Sussex Medical Chirurgical Society such an udder derived from a cow slaughtered in Brighton on the 22nd of the previous month. This cow had fresh milk in its udder at the time, and had been milked up to the time it was brought into Brighton, although suffering from extensive tubercular disease involving cervical, bronchial, mediastinal, mesenteric, inguinal and lumbar glands, as well as the peritoneum pleuroe and both lungs. At that meeting a resolution was passed *nem. com.* that in recommending milk supplies preference should be given to dairies supplying milk from cows which had been tested by tuberculin with a negative result.

The following table shews the number of tuberculous cows, the entire carcasses of which have been condemned in Brighton during the past five years.

On the strength of the experimental and other facts, of which examples have been given above, the Second Royal Commission on Tuberculosis, in their report, dated April 4th, 1898,

						FROM WHICH cows were derived supply milk to Brighton
Totals ...	55	24	9	14	41	

Of the total of 55 farms, 13 supply milk to Brighton, and it is a fair assumption that a similar proportion of the farms in which there were cows with tuberculous udders supplied milk to Brighton. Thus of the 55 tubercular cows entirely condemned for tuberculosis during these five years, 24 shewed tuberculosis of the udder.

The above table deals with animals which were completely destroyed. In addition to these, during the same five years, three tuberculous udders were destroyed in the slaughter-houses of the town, the remaining parts of the carcasses being passed for food. It will be noted that the 55 cows entirely destroyed for tuberculosis do not represent the total number of cows during the five years in which tuberculosis was found when they were slaughtered in the Brighton slaughter-houses. This number is probably twelve times as numerous. On this assumption, the proportion of tuberculous cows shewing disease in the udder is from three to four per cent. of the total number of such cows.

4.—Bacteriological examination and inoculation experiments on animals have proved that frequently cows' milk is capable of producing tuberculosis in other animals.

the rural community.

*Towns already possessing the powers asked for in the Corporation Bill.*

are now desired by the Brighton

5.—Feeding experiments on animals have repeatedly demonstrated the infectiveness of milk derived from tuberculous cows when the udder is implicated in the disease. Numerous experimental observations in which calves have been fed with milk derived from tuberculous udders and have become tuberculous in consequence, might be cited. Experiments have also been made by feeding

calves on the same milk which had been previously boiled. The result uniformly was that a large proportion of the former calves became tuberculous, the latter never did.

The unanimous conclusion of the First Royal Commission on Tuberculosis, which reported in April, 1895, may be quoted :—(Par. 22). “ Any person who takes tuberculous matter into the body as food incurs some risk of acquiring tuberculous disease.”

It appears probable



over  
D  
"Article 15 of the Order of 1885 shall be altered so that for the purposes of the provisions of paragraphs (a) and (b) thereof, the expressions in the said article which refer to disease shall include, in the case of a cow, such disease of the udder as shall be certified by a veterinary surgeon to be tubercular; and the Order and the Amending Order shall apply and be construed with the modifications necessary to give effect to this Article."

Article 15 of the Order of 1885 provides that if at any time disease exists  
ing or place, the milk of a

*causes of premature old age.* It is not sufficiently recognised that these evil effects are very commonly produced by the systematic indulgence in an amount of alcoholic drinks that would by most be regarded as moderate; and that those who, while never becoming intoxicated, daily take a considerable amount of spirits (especially if taken apart from meals) are much more likely to suffer in health and prematurely break down than the labourer who may get drunk once a fortnight and be a teetotaler in the intervals.

### RHEUMATIC FEVER.

During 1900, 9 deaths were caused by this important disease, as compared with 11 in 1899, 3 in 1898, 4 in 1897, 9 in 1896, 4 in 1895, 9 in 1894, and 6 in 1893. They represent but a small share of the mischief caused by this disease. The case mortality is low, but of those who survive, a large proportion are maimed by the heart disease which has supervened on the rheumatism. The yearly admissions for this disease to the County Hospital give a somewhat better estimate of the variations in prevalence of this disease. The figures for chronic rheumatism are added, lest perchance there should have been any transference between it and acute and sub-acute rheumatism, *i.e.*, rheumatic fever.

#### *Admissions to Sussex County Hospital.*

Year.	Acute Rheumatism.	Sub-acute Rheumatism.	Chronic Rheumatism.
1892 ... ..	28	12	9
1893 ... ..	41	3	9
1894 ... ..	42	10	9
1895 ... ..	22	5	10
1896 ... ..	37	5	1
1897 ... ..	31	4	12
1898 ... ..	19	17	12
1899 ... ..	24	4	7

### INFLUENZA.

Influenza is an intensely infectious disease. During 1900 the number of deaths ascribed to this disease was 70. For a statement of the number each year since 1890, when, after many years' absence, Influenza began to bulk largely in the death-rate of England, see Table XIV.

Besides the deaths returned as due to as influenza, a considerable number returned as caused by chest ailments have influenza for their primary cause.

TABLE XIV.  
*Deaths from Influenza in Brighton.*

Year.	Total Deaths.	Sex.		Ages at Death.									Estimated Population.	
		Males.	Females	0-1	1-5	5-15	15-25	25-35	35-45	45-55	55-65	65-75		75 and upwards
1890	23	5	18	—	—	—	1	3	5	4	3	5	2	114,814
1891	71	29	42	5	4	—	2	2	5	8	11	23	11	115,606
1892	149	56	93	3	6	1	3	9	12	18	30	41	26	116,424
1893	33	16	17	—	1	1	4	1	10	8	2	4	2	117,833
1894	49	25	24	3	4	1	4	2	2	4	11	11	7	118,715
1895	107	38	69	6	3	1	4	3	4	9	22	28	27	119,606
1896	21	11	10	2	—	1	1	1	—	1	6	3	6	120,419
1897	21	11	10	1	1	1	1	1	3	3	3	3	4	121,401
1898	33	14	19	3	—	3	—	2	5	6	5	4	5	122,310
1899	96	40	56	4	1	3	2	4	7	11	17	21	26	123,227
1900	70	27	43	—	—	1	1	1	6	11	12	18	20	124,148
Total for 11 years.	673	272	401	27	20	13	23	29	59	83	122	161	136	

## CANCER.

Cancer (including all forms of malignant disease) is a disease of immense national importance, as it cuts off so large a proportion of the population at an age when experience has ripened but the natural processes of old age have not done their work. There is a widespread impression—which, as I have repeatedly contended elsewhere, is probably erroneous—that the mortality from this disease is rapidly increasing. It is more probable that the greater part and possibly the whole of the registered increase is caused by the more complete certification of causes of death. In view of the national importance of this disease, I propose to publish annually a statement of our local experience as to it, so that in time we may be able to judge more accurately on the statistics of cancer. This would be greatly facilitated if every practitioner would specify the organ primarily affected when writing the certificate of death. In the following table I have compared the experience of Ireland with that of Brighton, as the localisation of deaths from cancer in Ireland has been given for a series of years. Ireland shews a registered increase in ten years of 35 per cent. ; Brighton no increase, which coincides with my contention that the supposed increase is one of certification ; so that Brighton with its comparatively high social status of patients and high status of the medical profession fails to show the increase. Whatever the interpretation put on the figures, this is certain, that in Brighton the mortality from cancer is not increasing. Probably when the next census figures are available it will be shewn that, making allowance for age, the death-rate from cancer in Brighton has really declined.



TABLE XV.

*Registered Deaths from Cancer (Malignant Disease).*

Seat of Primary Disease.	Ireland.				Brighton.			
	Three Years 1887-89.		Three Years 1897-99.		Three Years 1889-91.		Three Years 1898-1900.	
	M.	F.	M.	F.	M.	F.	M.	F.
Head, Face, Eye, Orbit, Nose, Ear	215	209	260	227	3	4	4	3
Jaws ... ..	93	35	146	45	6	—	2	1
Mouth, Tongue, Lips ... ..	304	57	423	85	8	3	7	2
Neck, Throat, Tonsils, Larynx..	216	100	292	104	7	8	5	4
Axilla, Arm, Hand ... ..	29	22	58	56	—	—	1	2
Lung, Chest, Mediastinum ... ..	*	*	14	9	1	2	2	2
Esophagus ... ..	*	*	56	42	9	1	11	3
Breast ... ..	11	738	24	835	—	44	—	44
Abdomen ... ..	*	*	77	128	1	11	3	6
Stomach and Pylorus ... ..	955	769	1152	925	16	15	22	17
Liver and Gall Bladder ... ..	215	301	415	521	10	15	16	25
Pancreas ... ..	*	*	21	11	3	1	2	4
Peritoneum, Mesentery ..	*	*	13	33	—	5	3	7
Intestines (excluding Rectum) ...	79	103	141	163	4	7	10	9
Rectum ... ..	101	93	215	147	5	14	15	15
Ovary ... ..	*	*	—	28	—	8	—	5
Uterus ... ..	—	484	—	547	—	44	—	43
Vagina and Vulva..	*	*	—	28	—	—	—	3
Penis ... ..	*	*	19	—	—	—	—	—
Pelvis, Kidney, Bladder, Prostate, Urethra ... ..	*	*	54	31	9	4	2	6
Testes, Scrotum ... ..	*	*	15	—	2	—	2	—
Groin, Leg, Foot ... ..	106	104	102	141	1	2	3	—
Other specified parts ... ..	195	140	103	91	—	—	—	—
Parts unspecified ... ..	258	294	44	97	9	16	6	9
Total ... ..	2777	3449	3644	4294	94	204	116	209
Annual Death-rate per 1,000 of } Estimated Population }	·43		·58		·86‡		·83	
Increase .. ..	35 per cent.				None.			

\* Deaths from cancer of this part of body not separately tabulated.

† The population of Ireland in 1891 was 4,681,248; the official estimate for 1898 was 4,543,773. The population of Brighton in 1891 was 115,606; the official estimate for 1899 was 123,227.

‡ The mean annual death-rate from cancer in Brighton in 1851-70 was ·30; in 1871-80 it was ·75, and in 1881-90 it was ·87 per 1,000.

## C.

REPORT ON THE WORK OF THE MUNICIPAL HYGIENIC  
LABORATORY.

Active work in this laboratory commenced in November, 1897. The work in connection with it has increased to an almost embarrassing extent, as shewn by the following table :—

				1897-8 (14 months).	1899.	1900.
Widal-Grüber test for Typhoid Fever...				164	153	95
Bacteriological Diagnosis of {	Diphtheria ...	...	...	414	2033	2191
	Phthisis ...	...	...	21	47	86
	Other Diseases ...	...	...	2	—	—

*Diphtheria.*—The number of specimens and the character of the cases from which they were taken is shewn in the next table. The number of specimens sent by practitioners in the town, or taken from children in the town by myself or my medical assistant, have been 563. In connection with this, I have repeatedly emphasised the importance of only attaching minor importance to negative results (see p. 43). When the diphtheria-bacillus is found in slight cases of sore throat, an important step towards preventing the spread of infection has been prepared ; but when it is not found, the responsibility for final decision still remains with the medical attendant.

It will be noted that of the 451 specimens examined from the throats of scarlatinal patients, 9 shewed and 13 were suspicious of the presence of the diphtheria-bacilli. The ascertaining of this fact, and the subsequent isolation of the patients thus shewn or suspected to be suffering on admission from double infection has enabled us during the past year to keep an almost clear record so far as post-scarlatinal diphtheria is concerned.

*Examinations for the Diphtheria Bacillus.*

	Positive.	Negative.	Doubtful.	Total.
Town specimens ... ..	157	365	41	563
Hospital Patients—				
Admissions for Diphtheria ... ..	377	125	36	538
„ „ Scarlet Fever ... ..	9	429	13	451
Convalescents from Diphtheria ... ..	202	331	38	871
„ „ Scarlet Fever ... ..	10	53	5	68
	755	1303	133	2491

*Typhoid Fever.*—There has been much less typhoid fever in the town during 1900, and the specimens under this head have declined. Of the 95 specimens examined, 36 gave a positive, 49 a negative, and 10 a doubtful result.

*Phthisis.*—The facilities for examination of phthisical sputa are becoming more widely used.

## B.—SANITARY WORK OF THE YEAR.

### SANITARY INSPECTIONS.

In the following tables, prepared by Mr. Skinner, the Chief Sanitary Inspector, the work of the Sanitary Department is stated, so far as it can be given in tabular form. It will be seen that 8,598 houses were visited in the course of house-to-house inspection, as compared with 8,080 in 1899. This, however, does not represent the total number of houses visited during the year. Apart from house-to-house inspection, a large proportion of the time of the inspectors is occupied in attending to complaints received from householders in every part of the town. During last year 1,245 such complaints received attention, as compared with 1,352 in the previous year. In addition, 7,390 visits were made for purposes of investigation and disinfection after cases of infectious disease. In each of these cases it is the practice to take the opportunity of making a sanitary examination of the houses visited. 2,964 visits were made during the year to Slaughter-Houses, 18 to Cowsheds, 396 to Bakehouses, 1,525 to Dairies and Provision Shops. The Common Lodging-houses have received 114 visits. In 119 houses the soil-pipe has been tested by volatile tests ; and 530 drains have been opened for examination. For particulars of the work see the table on the next page.



TABLE XVI.—*Inspections during 1900.*

	1st Qrtr.	2nd Qrtr.	3rd Qrtr.	4th Qrtr.	Totals for 1900.	Totals for 1899.
Number of Streets Inspected ... ..	79	73	44	62	258	203
„ Houses and other Premises						
Inspected... ..	2847	2221	1243	2287	8598	8080
Number of Complaints attended to ... ..	267	321	394	263	1245	1352
„ Visits to Slaughter Houses ... ..	619	988	627	730	2964	3746
„ Visits to Cowsheds ... ..	8	5	3	2	18	20
„ „ Bakehouses ... ..	198	—	198	—	396	396
„ „ Dairies and Provision						
Shops ... ..	309	350	460	406	1525	1829
Number of Day Visits to Common Lodging-						
Houses ... ..	29	18	17	27	91	83
Number of Night Visits to ditto ... ..	—	6	5	12	23	34
„ Visits in respect of Sickness ... ..	692	1225	1592	1077	4586	6034
„ Visits to Fumigate Rooms ... ..	413	374	362	366	1515	1776
„ Visits for Removal of Bedding ... ..	342	302	320	325	1289	1323
„ Drains tested by Volatile Test ... ..	33	39	23	24	119	97
„ Drains Opened for Examination... ..	145	120	117	148	530	516
„ Visits for Sundry Purposes ... ..	1442	2397	1842	1945	7626	5545
„ Visits to look up Notices Served... ..	2137	1246	2060	2026	7469	7807
„ Attendances at Police Court ... ..	10	7	3	23	43	20
„ Samples Collected for Analysis ... ..	113	104	157	112	486	72
„ Inspections of Stables ... ..	338	267	385	437	1427	1293
„ Wastes of Water reported... ..	26	51	43	38	158	120
„ Letters sent to Schools and Public						
Library ... ..	457	1348	1350	1346	4501	2670
Meteorological Observations taken ... ..	169	169	169	169	676	676
Visits to Schools ... ..	216	128	33	99	476	305
Number of Visits to Offensive Trades ... ..	3	—	—	—	3	5
„ Visits under Factory & Workshops						
and Shop Hours Act ... ..	493	962	890	941	3286	2967
Drains flushed ... ..	—	10	—	—	10	59
Circulars delivered <i>re</i> Diarrhœa ... ..	—	10000	—	—	10000	10000
Markets Committee, 1 Inspector ... ..	—	—	14 dys	—	14 dys	10 dys
Visits to Houses Let in Lodgings (Day) ... ..	97	114	64	47	322	366
Visits to Houses Let in Lodgings (Night) ... ..	6	—	—	—	6	—
Smoke Observations ... ..	18	10	1	—	29	—

The Sanitary Inspections enumerated in Table XVI. have been followed by the serving of the notices given in Tables XVII. and XVIII. A very large proportion of the work is done on the strength of verbal recommendations or preliminary “warning” notices.

TABLE XVII.—*Notices served on Owners during 1900.*

Nature of Notice.	Warning and Verbal Notices.			Final Notices.		Total Number of Notices on owners complied with.
	Number served.	Number complied with before service of final notice.	Number reported for final notice.	Number served.	Number complied with.	
To drain into sewer and fill up cesspools ... ..	5	2	3	4	4	6
To relay drain and fill up cesspools ... ..	9	8	1	1	1	9
To relay drain ... ..	373	262	111	106	104	366
To repair drain and soil pipe ...	190	113	77	74	71	184
To trap drain ... ..	138	89	49	50	49	138
To cleanse & whitewash rooms	315	172	143	123	115	287
To clear drain or soil pipe ...	117	47	70	71	71	118
To clear, repair or cleanse closet, or repair flushing apparatus or pan ... ..	648	338	310	330	322	660
To repave yard or scullery ...	308	146	162	172	167	313
To abate other nuisances ...	1479	855	624	665	637	1492
To provide covered dust bins ...	856	428	428	490	468	896
To provide premises with a proper water supply ... ..	12	3	9	9	9	12
To cleanse premises and remove foul accumulations ... ..	8	6	2	1	1	7
To provide manure receptacles	40	22	18	26	25	47
To fill up underground manure pits ... ..	22	8	14	18	17	25
To provide w.c. accommodation	9	6	3	1	1	7
To lay on water to closet ...	26	15	11	10	10	25
To alter water pipes ... ..	5	5	0	1	1	6
To cause waste pipes to discharge into outer air ... ..	15	5	10	7	7	12
To pave and drain stables ...	5	3	2	2	1	4
To pave yard or window area...	15	11	4	0	0	11
Totals ... ..	4595	2544	2051	2161	2081	4625

TABLE XVIII.—*Notices served on Occupiers during 1900.*

Nature of Notice.	Warning and Verbal Notices.			Final Notices.		Total number of notices on occupiers complied with.
	Number served.	Number complied with before service of final notice.	Number reported for final notice.	Number served.	Number complied with.	
To cleanse and white-wash rooms	22	12	10	1	1	13
To clear drain or soil pipe ...	15	11	4	1	1	12
To clear, repair or cleanse closet, or repair flushing apparatus or pau ... ..	228	160	68	51	50	210
To abate other nuisances ...	68	55	13	7	7	62
To discontinue keeping animals so as to be a nuisance ...	157	82	75	77	75	157
To abate overcrowding ...	86	51	35	34	34	85
To abate smoke nuisance ...	2	1	1	1	1	2
Cleanse and white-wash bake-houses ... ..	114	100	14	—	—	100
Cleanse and white-wash work-rooms ... ..	28	22	6	1	1	23
To discontinue to let or occupy cellar dwellings ...	8	7	1	1	1	8
Cleanse premises and remove all foul accumulations ...	320	220	100	95	95	315
To provide covered dust bins ...	1	1	—	—	—	1
To repave yard or scullery ...	2	2	—	—	—	2
Totals ... ..	1051	724	327	269	266	990
Total of notices served on owners	4595	2544	2051	2161	2081	4625
Total notices served ... ..	5646	3268	2378	2430	2347	5615

The increased readiness with which notices are complied with has been continued during 1900, as evidenced by Tables XIX.

TABLE XIX.

Date of Annual Report.	Year under Report.	Percentage of notices not complied with at time of issue of Report.
March 23rd, 1889 ... ..	1888	20 per cent.
February 13th, 1890 ... ..	1889	14 „
March 31st, 1891 ... ..	1890	4·3 „
March 16th, 1892 ... ..	1891	3·2 „
April 21st, 1893 ... ..	1892	1·3 „
April 13th, 1894 ... ..	1893	0·8 „
April 15th, 1895 ... ..	1894	1·3 „
June 20th, 1896 ... ..	1895	0·0 „
April 12th, 1897 ... ..	1896	0·4 „
March 14th, 1898 ... ..	1897	0·8 „
March 27th, 1899 ... ..	1898	1·8 „
February 26th, 1900 ... ..	1899	2·8 „
March 23rd, 1901 ... ..	1900	1·0 „

Only two summonses were required during the year for non-compliance with notices to abate nuisances.

### COMMON LODGING HOUSES.

Four are at present registered, having accommodation for 188 lodgers. One of these (accommodating eight men) is in the Spa Street area. The bye-laws have been carried out strictly during the past year.

### HOUSES LET IN LODGINGS.

Bye-laws for houses of a rateable value not exceeding £26, and having three families in them if the landlord lives in the house, or two if the landlord does not live in the house, were confirmed by the Local Government Board on 13th July, 1898, and 83 such houses are now on the register, as compared with 76 at the end of 1899.

### HOUSING OF THE WORKING CLASSES ACT.

#### PART I.

The proceedings for the clearing of the Spa Street area are slowly advancing, and during the present year the area will be cleared and re-housing begun.



## PART II.

Official representations have been made by me, under Part II. of the above Act during 1900, that the following premises are in a state so dangerous to health as to be unfit for human habitation :—

Situation of Premises.	No. of houses.	Legal proceedings taken.	Result.
Sweet Hatch ...	1	—	Under consideration.
Tielborne Street ...	1	—	House put into thorough repair.
Melbourne Street ...	1	—	House put into thorough repair.
Castle Street ...	1	—	House permanently closed and converted into store or work-shop.
Claremont Row ...	1	—	Ditto.
John" Street "	1	—	House put into thorough repair.
Preece's Buildings ...	9	Yes.	House put into thorough repair.
		—	Under consideration.

## STREET SANITATION.

During 1900 the following streets, on which I had reported to the Works Committee, were tar-paved :—Carlton Place, Claremont Row, Dorset Street, Nelson Row, Regent Court, Woburn Place. The tar-paving, as well as to a less extent wood-paving, which has been carried out to a large extent during the last year, lends itself to much more efficient scavenging than the old macadam roads. The importance from a health standpoint of frequent washing and cleansing of the surfaces of streets, particularly of streets containing houses occupied by the labouring class has not hitherto been sufficiently realised.

## REMOVAL OF HOUSE REFUSE.

In accordance with the arrangement made with the Borough Surveyor's Department, the following information has been supplied to me and the necessary notices served in each instance :—

Refused to have refuse removed	...	...	...	104
No answer on dustmen calling	...	...	...	137
No bins, defective bins, &c.	...	...	...	171
Other sanitary defects	...	...	...	4

## FACTORY AND WORKSHOP ACTS.

During 1900, 3286 visits had been made; 1562 of these being inspections, the remainder being for the purpose of serving Notices and affixing forms and the looking up of Notices served.

480 inspections were of Bakehouses.

42	„	„	Factories.
134	„	„	Workshops employing protected persons.
118	„	„	Adult Male Workshops.
212	„	„	Domestic Workshops and outworkers.
576	„	„	Premises coming under the Shop Hours Act.

During the year 126 Workrooms have been measured up in accordance with Section 1 of the Factory and Workshop Act, 1895, making a total of 926 since the passing of the Act. This section requires that there shall be 250 feet of cubic space for each person in a workshop during the day, and 400 feet for each person during overtime. The Act also requires that a notice shall be kept exhibited in each room, stating the number of persons who may be employed. These notices are supplied by us on cards, which can be conveniently hung.

The following defects have been found in the course of Inspector Mills' inspections during the year. Notices to remedy these defects have been well complied with, at the present time only 3 being outstanding :—

Workshops requiring cleansing or whitewashing ...	...	...	52
„ overcrowded ...	...	...	16
„ without proper ventilation ...	...	...	13
„ damp and dilapidated... ..	...	...	2
„ without closet accommodation ...	...	...	8
„ without separate closet accommodation for sexes ...	...	...	2
Bakehouses requiring cleansing or whitewashing...	...	...	112
Closets with flushing apparatus defective...	...	...	48
„ defective ... ..	...	...	51
Closet pans foul ... ..	...	...	28
Closets unventilated ... ..	...	...	20
„ without water supply ... ..	...	...	3
„ choked ... ..	...	...	7
Drinking water cistern foul ... ..	...	...	3
Drains defective ... ..	...	...	29
Drains ventilators defective ... ..	...	...	8
„ choked ... ..	...	...	9
„ untrapped ... ..	...	...	18
„ traps choked and foul ... ..	...	...	8
Soil pipes defective ... ..	...	...	10
Paving of yards or laundries defective ... ..	...	...	33
Without proper dust bin ... ..	...	...	30

Waste pipes defective	...	...	...	...	...	...	13
Animals kept in dirty condition	...	...	...	...	...	...	15
Sinks leaky	...	...	...	...	...	...	14
Yards dirty	...	...	...	...	...	...	33
Foul accumulations on premises	...	...	...	...	...	...	15
Roof and rain water pipes defective	...	...	...	...	...	...	11
Premises in foul condition	...	...	...	...	...	...	17
Urinals foul and defective	...	...	...	...	...	...	15
* Lead workers' workshops without washing conveniences	...	...	...	...	...	...	5
Encroachment on air space	...	...	...	...	...	...	1
Unventilated gas stoves in workrooms	...	...	...	...	...	...	8
Washhouses without footboards	...	...	...	...	...	...	2
Drain traps in bakehouses	...	...	...	...	...	...	4
Manure pits defective	...	...	...	...	...	...	4
							<hr/> 667 <hr/>

\* Circulars left in each case.

The ventilation of gas stoves in workshops, in which these stoves are used for heating pressing-irons, is most important. All the notices to provide such ventilation have been complied with. A hood is supplied to the stove with a pipe leading from it to the chimney flue or through the wall.

During the year H.M. Inspector of Factories has made complaint in respect of sanitary defects in nine Workshops and two Factories. These have been attended to, and reports made in accordance with the Act to H.M. Inspector.

Notice has been sent to H.M. Inspector in respect of 68 Factories and Workshops which were employing protected persons, but were without Abstracts and proper Forms.

Four complaints in respect of irregular hours of work in Workshops have been forwarded to H.M. Inspector.

#### SHOP HOURS ACT.

#### SEATS FOR SHOP ASSISTANTS ACT.

Complaints were made in respect of three shops as to young persons working beyond the 74 hours allowed by the Act, but in each case the time worked was found to be under the legal amount. Thirty-six shops employing persons under 18 years of age were found without the Abstract shown, but these have now been affixed. In the course of his inspections during the year Inspector Mills has visited 18 shops employing more than 3 female assistants; 16 of these had provided seats and the remaining two did so on their attention being called to the provisions of the Seats for Shop Assistants Act, 1899.

## THE PUBLIC ABATTOIR.

1900 is the sixth complete year of working the Abattoir.

The following statement, supplied by Inspector Cuckney, the superintendent of the Abattoir, gives the number of animals slaughtered in the public and private slaughter-houses at the Abattoir :—

Year.	In the Public Slaughter-Houses					In the Private Slaughter-Houses					Total.
	Beasts.	Calves.	Sheep.	Lambs.	Pigs.	Beasts.	Calves.	Sheep.	Lambs.	Pigs.	
1895	89	95	694	113	4182	187	71	1231	329	—	6991
1896	333	253	1549	201	4134	58	69	990	201	3391	11184
1897	589	384	3077	224	2442	16	69	1145	158	3950	12054
1898	1008	503	4114	458	2645	6	11	229	31	3322	12650
1899	1409	653	5650	491	3560	—	—	—	—	4621	16384
1900	1471	879	4977	374	4868	93	39	1049	206	4348	18304

The amount received in tolls since the opening of the Abattoir has been as follows :—November and December, 1894, £7 13s. 4d. ; 1895, £102 15s. 4d. ; 1896, £122 4s. ; 1897, £115 7s. 7d. ; 1898, £185 10s. 3d. ; 1899, £243 9s. 4d. ; 1900, £279 17s.

## UN SOUND MEAT SEIZED OR SURRENDERED DURING 1900.

Description.	Number of Animals.	Number condemned by Magistrate.	Number destroyed by arrangement with Owner.	Total weight in lbs.
<i>A.—At the Abattoir—</i>				
Bullocks (whole carcase) ...	13	—	13	8,228
„ (part of carcase) ...	187	—	187	3,258
Calves (whole carcase) ...	—	—	—	—
„ (part of carcase) ..	—	—	—	—
Sheep (whole carcase) ...	5	—	5	196
„ (part of carcase) ...	23	—	23	109
Pigs (whole carcase)... ..	29	—	29	3,221
„ (part of carcase) ...	702	—	702	3,549
<i>B.—In the Private Slaughter-houses and Shops—</i>				
Bullocks (whole carcase) ...	6	—	6	3,444
„ (part of carcase) ...	375	—	375	2,534
Calves (whole carcase) ...	1	—	1	144
„ (part of carcase) ...	5	—	5	59
Sheep (whole carcase) ...	9	2	7	488
„ (part of carcase) ...	149	—	149	436
Pigs (whole carcase)... ..	2	—	2	208
„ (part of carcase) ...	39	—	39	312
	1,545	2	1,543	26,186



The total amount of meat destroyed in connection with the private slaughter-houses and shops was 7,625 lbs.; at the abattoir, 18,561. Of the meat destroyed at the abattoir a considerable proportion consists of animals sent for inspection to the abattoir because their condition is doubtful, or carcasses of animals killed outside the Borough and brought to the abattoir for inspection.

Of the beasts, 1 steer and 15 cows, and 246 parts of beasts were found to be tuberculous, and 1 calf, 5 parts of calves, 13 pigs and 278 parts of pigs were also found to be tuberculous.

### UNSOUND FOOD.

The following foods were voluntarily given up by the vendors and destroyed:—150 geese, 63 rabbits, 20 fowls, 4 tins of potted meat, 3 tins of potted salmon, 36 of shrimps, 37 of condensed milk, 8 cwt. of potatoes, 9 cwt. of carrots, 325 lbs. of cherries, 13 bushels of damsons, 9 crates of endive, 4 baskets of gherkins, 101 melons, 40 boxes of peaches, 85 bushels of plums, 257 bushels of pears, 40 tins of French beans, 4 bushels of red and 3½ of black currants.

32 bushels of pears and 11 bushels of plums, although voluntarily given up, were taken to the Magistrate for condemnation, in view of possible complications with the wholesale dealers.

16 fowls, 3 ducks and 1 pigeon were condemned by the Magistrate, and the vendor was fined £1 and costs.

Two hawkers were fined 5s. and costs each for offering for sale damsons of which six bushels were condemned by the Magistrate.

247 tins of preserved French beans, which had been consigned to Brighton from London by two Italian provision merchants were condemned. One Italian was acting as the agent of the other. Each of these was fined £30 and costs.

### SALE OF FOOD AND DRUGS ACT.

Report of Inspector Cuckney—

Number of samples collected ...	...	...	...	...	510
„ „ adulterated ...	...	...	...	...	57
„ prosecutions ...	...	...	...	...	26
„ convictions... ..	...	...	...	...	18
„ withdrawn .. ..	...	...	...	...	2
„ Dismissed ... ..	...	...	...	...	6
Aggregate amount in fines ...	...	£50	10	0	
Analyst's fees recovered ...	...	...	5	0	6
				<u>£55</u>	<u>10 6</u>

Cost of samples	...	...	...	£6	10	6
Cost of analyses	...	...	...	137	13	6
Analyst's salary...	...	...	...	50	0	0
Inspector's salary	...	...	...	12	0	0
Cost of assistance, postage and railway fares	...	...	...	10	2	7½
				216	6	7½
Fines and Analyst's fees recovered	...			55	10	6
Net cost of working the Act	...			£160	16	1½

The samples collected were :—Milk 247, Butter 66, Margarine 36, Cheese 27, Self-Raising Flour 4, Baking Powder 4, Mustard 5, Ground Ginger 6, Cocoa 6, Golden Syrup 6, Camphorated Oil 6, Whisky 16, Pepper 7, Vinegar 6, Brandy 4, Gin 3, Marmalade 8, Peas 1, Sausages 4, Honey 1, Jam 6, Cream 3, Beer 13, Sweets 6, Coffee 6, Lard 7, Condensed Milk 6.

Of the samples of Milk, sixteen were adulterated with added water, 5, 5, 6, 2, 8, 14, 7, 8, 7, 1, 8, 7, 7, 10, 5, 8 and 7 per cent., and 21 were deficient in fat, 14, 5, 2·3, 6, 6, 13, 2·6, 3, 6, 3, 13, 96, 10, 6, 18, 6, 33, 16, 26, 13, 13.

Of the Butter, four were adulterated, two with water, 21, 21 per cent., two with Margarine, 78, 78 per cent.

Of the Pepper, five were adulterated with Indian Corn, 40, 30, 30, 30 and 30 per cent.

Of the Margarine, one sample was sold in a plain wrapper and one had 22 per cent. of butter fat added to it.

Of the Whisky, three samples were adulterated, 26, 26 and 33 degrees under proof.

Of the Camphorated Oil, five were deficient in Camphor, 0·53, 0·97, 4·1, 0·97 and 1·6 per cent.

Of the Cream, two were adulterated with a small amount of Borax. The remaining samples were genuine.

Sixteen milk-sellers were fined amounts varying from £10 to 10s. One wholesale milk-seller, against whom the charge was withdrawn, paid the costs, £2 5s.

One licensed victualler was fined £5 and costs for selling whisky 33 degrees under proof.

One coffee-house keeper was fined £4 and costs for selling Margarine spread on bread when Butter was asked for.

## REPORT OF PUBLIC ANALYST.

By MEREDITH WYNTER BLYTH, B.Sc., B.A. F.I.C.

Nature of Sample.	Total number examined.	Genuine.	Adulterated or of very poor quality.	Percentage of Adulterated or very poor samples.	Nature of the Adulteration.
Milk ... ..	247	208	39	15.78	Addition of water. Addition of preservatives and colouring matters. Abstraction of fat.
Condensed milk	6	6	—	—	
Cream ... ..	3	1	2	66.66	Addition of preservatives.
Butter ... ..	66	60	6	9.09	Excess of water. Substitution of foreign fat. (Addition of preservatives and aniline dyes <i>not</i> included.)
Margarine ...	36	35	1	2.77	Excess of butter fat. (Aniline colours not included.)
Cheese ... ..	27	27	—	—	
Lard ... ..	7	7	—	—	
Spirits ... ..	23	19	4	17.39	Addition of water. Addition of sugar.
Beer ... ..	13	13	—	—	
Jam ... ..	6	1	5	83.33	Substitution of glucose for cane sugar. Addition of preservatives.
Marmalade ...	8	2	6	75	Substitution of glucose for cane sugar. Addition of preservatives.
Sweets ... ..	6	—	6	100	Substitution of glucose for cane sugar. Addition of aniline dyes.
Honey ... ..	1	1	—	—	
Golden syrup ...	6	6	—	—	
Coffee ... ..	6	6	—	—	
Cocoa ... ..	6	6	—	—	
Mustard ... ..	5	5	—	—	
Pepper ... ..	7	2	5	71.42	All adulterated with ground maize.
Viuegar ... ..	6	6	—	—	
Ginger ... ..	6	6	—	—	
Baking powder...	4	4	—	—	
Sausages ... ..	4	2	2	50	Addition of preservatives and colouring matters.
Peas ... ..	1	1	—	—	
Flour ... ..	4	4	—	—	
Camphorated oil	6	4	2	33.33	Deficient in camphor.
Total ... ..	510	432	78	15.29	

*Milk.*—The samples of milk examined during the year were obtained from two sources—(1) from the churns at the Railway Station before delivery to the retailer, (2) from the retailer (either at the shop or in the streets). These samples were taken either on Sundays or on week days. The following table which shows the average percentage of fat and the percentage of adulteration in the samples from both sources is instructive.

	Where taken.	Number of Samples.	Average per cent. of Fat.	Number of Adulterated Samples.	Per centage of Adulteration.
Week days {	At the Station ...	80	4·30	1	1·25
	From the retailer ...	119	3·30	27	22·70
Sundays {	At the Station ...	12	4·37	—	—
	From the retailer ...	36	3·29	11	30·50

The conclusions that may be drawn from these figures are that (1) The milk sent into Brighton is of first-class quality and rarely adulterated in any form.

(2). The average milk sold in Brighton, judging by the samples sent to me is of poor quality ; and

(3). The average milk sold in Brighton on Sundays, judging by the samples sent to me, is of very poor quality and shows a very high percentage of adulteration.

*Preservatives and Aniline Dyes.*—The use of preservatives (Borax, Salicylic Acid, etc.), in foods is still very common, and during the past year samples of Milk, Cream, Butter, Jam, Marmalade, and Sausages were found to contain small quantities of preservatives.

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*Note by Medical Officer of Health on Analyst's Report.*—As noted by the Public Analyst, the above striking and important conclusions are based solely on the samples submitted to him. It is proper to observe, however, that these samples are not necessarily a fair example of the average milk supplied by all the dairymen in Brighton. Whether they are so or not depends upon the skill of the Inspector under the Act in recognising those dairymen who deal in suspicious milk, and in taking a much larger proportion of samples from them than from those numerous dairymen whose milk is above suspicion. Inspector Cuckney has skilfully administered this Act for a number of years, and I am of opinion that the enormous difference in the quality of retail and wholesale milk shewn in the above table is explicable as above. The question naturally arises how has the difference between wholesale and retail milk been brought about? The answer lies in the fact that an enormous amount of separated milk now daily finds its way into the town. Some of this milk is honestly sold as such. A large share, however, is consigned to dairymen who deal both in whole and separated milk, and much also to certain dairymen who never sell separated milk as such. The resulting fraud to the public is great ; the injury to infants, who are, in this way, deprived of a part of their food which is essential for growth, is greater.



Certain samples of Milk, Butter, Margarine, Sweets, and Sausages were found to be coloured with aniline dyes.

There is still a considerable difference of opinion amongst medical men as to how far small quantities of preservatives and aniline dyes are injurious to health; there can, however, be no doubt that the constant taking of small quantities of preservatives and aniline dyes in so much of the food we eat must in time have a prejudicial effect upon our digestion, and in the case of very young children may lead to serious results.

*Glucose.*—This substance which is one of the products formed by the action of mineral acids (usually sulphuric) on starch, is at the present time not only largely used in brewing, but also in the preparation of Jam, Marmalade, Honey, etc.

The possibility of glucose being contaminated with arsenic was pointed out by Dr. Wynter Blyth as early as 1879; this possibility also applies to any food or drug prepared with sulphuric acid.

During the months of November and December 13 samples of Beer (from different breweries), six samples of Jam, eight samples of Marmalade, six samples of Sweets, and one sample of Honey were examined and found to contain no arsenic.

The general composition of the samples of Jam and Marmalade (which were described as "Pure," "Home Made," "Farm House," etc.), was far from satisfactory; of the Jams five samples contained glucose and one Salicylic acid; of the Marmalades five samples contained glucose and two Salicylic acid. All the samples of Sweets contained glucose as well as aniline dyes.

Earlier in the year six samples of Golden Syrup were examined and found to be of good quality and free from glucose.

(Signed) M. WYNTER BLYTH.

## D.—BOROUGH SANATORIUM.

The following table gives a summary as to patients treated in the Borough Sanatorium during 1900 :—

TABLE XX.

*Number of Patients during 1900.*

DISEASE.	Remaining in the Hospital on Dec. 31st, 1899.	Admitted during 1900.	Total number treated during 1900.	Number discharged during 1900.	Number who have died in the Hospital during 1900.	Remaining under treat- ment on Dec. 31st, 1900.
Scarlet Fever...	120	532	652	609	9	34
Enteric Fever...	6	46	52	36	6	10
Measles ...	—	4	4	—	4	—
Diphtheria ...	36	589	623	527	53	43
Small Pox ...	—	—	—	—	—	—
Other Diseases	—	7	7	4	3	—
TOTALS ...	162	1176	1338	1176	75	87

Of the above patients, 16 suffering from scarlet fever were admitted from Warren Farm, 2 from Falmer, 1 from Moulscombe, 1 from Roedean, and 1 suffering from diphtheria from Rottingdean. The total also include the following cases among the staff :—2 scarlet fever, 1 enteric fever and 4 diphtheria.

The following table gives the number of patients for whom payment was claimed, and the amount claimed in each case.

TABLE XXI.

By whom Payable.	Number of Patients.	Amount Payable.
Brighton Board of Guardians... ..	27	£ s. d. 96 7 1
Private Patients... ..	41	420 8 4
Disinfection, and hire of van for Patients not removed to Sanatorium ... ..	—	7 19 9½
		524 15 2½

The items in the following statement have been furnished by Mr. Stevens, the Borough Accountant :—

TABLE XXI.

*Expenditure at Sanatorium.*

	1892.		1893.		1894.		1895.		1896.		1897.		1898.		1899.		1900.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
Salaries and Wages—	150	0 0	150	0 0	150	0 0	150	0 0	177	6 0	150	0 0	150	0 0	150	0 0	150	0 0
Medical Officer	64	11 6	59	19 3	59	19 3	76	17 6	79	19 0	79	19 0	79	19 0	79	19 0	79	19 0
Matron and Steward	422	12 10	435	9 2	421	6 8	416	14 7	431	7 2	499	19 5	610	19 6	1073	13 6	1278	17 9
Nurses, Porters and Servants	886	5 5	1092	17 6	821	10 4	713	6 10	730	13 9	941	6 2	1140	9 5	2251	8 6	2173	1 4
Groceries, Provisions, &c.	52	11 1	52	2 4	42	10 10	36	19 4	42	0 11	75	17 8	133	1 1	243	1 4	332	15 9
Medical Sundries and Disinfectants	70	2 6	48	8 4	67	15 6	59	14 7	84	19 4	102	13 7	204	0 4	266	3 8	198	6 4
Drapery Goods (including Uniforms)	300	8 9	339	14 4	323	19 5	401	8 3	254	15 7	296	19 2	434	1 4	717	0 5	917	15 1
Lighting and Heating	37	5 0	37	5 0	38	10 0	41	1 8	44	1 8	43	1 8	49	1 8	59	12 9	94	12 9
Rates and Taxes (including Water Rate)	17	11 6	17	11 6	17	11 6	17	11 6	17	11 6	17	11 6	18	4 6	23	19 6	18	17 3
Fire and Boiler Insurance	15	16 3	12	9 7	15	1 1	14	5 10	11	18 9	10	14 8	36	5 8	37	6 9	51	17 6
Printing, Stationery and Advertising	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hose, Hydrants and Fitting	140	17 0	70	10 0	59	1 11	16	14 0	9	7 0	27	6 6	210	8 5	104	19 3	185	1 8
Repairs, &c.	85	11 2	126	2 4	127	9 3	94	14 10	77	5 7	96	18 2	132	12 3	106	7 2	251	14 1
Miscellaneous	6	6 0	2	2 0	—	—	15	2 9	10	10 0	4	4 0	8	13 0	18	16 0	18	18 0
Fees to Surgeons	—	—	37	1 1	15	7 6	8	15 9	45	2 6	28	13 9	43	12 3	106	15 0	28	12 6
Hire of Institution Nurses	40	14 10	44	10 10	94	18 0	112	1 1	123	11 5	113	9 4	216	3 2	611	13 2†	180	4 5
Gardener, Garden, Sundries and Manure	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	157	2 3
Hospital Huts	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Expenditure in the Year	2290	13 10	2526	3 3	2255	1 3	2175	8 6	2140	10 2	2449	6 8	3467	11 7	5850	6 0	6117	15 8
No. of Patients in the Year	352		419		302		284		350		451		619		1304		1176	
Total No. of Weeks spent by above Patients and by Staff in the Sanatorium	2164		3031		2119		1517		1887		2498		3260		7006		6296	
Total Cost per week for each Patient, including all the Working Expenses	s. d. 21 2		s. d. 16 8		s. d. 21 3		s. d. 28 8		s. d. 22 8		s. d. 19 9		s. d. 21 3		s. d. 16 8		s. d. 18 7	

†Including £365 5s. 5d. for asphaltting paths.

‡The estimate is based on staff *plus* patients, as it has not been practicable to separate the accounts for the two.

